

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 743.—VOL. XIX.]

LONDON, SATURDAY, NOVEMBER 17, 1849.

[PRICE 6D.]

TO ENGINEERS, MACHINE-MAKERS, FOUNDERS, BOILER-MAKERS, STEAM-SHIP AND LOCOMOTIVE BUILDERS, AND OTHERS.

ENGINE WORKS, FOUNDRY, &c., FOR SALE, AT ABERDEEN.—UPPER PRICE REDUCED TO £10,000.
There will be exposed to UNRESERVED SALE, with the Good-will of the Business, BY PUBLIC AUCTION, within the Lemon Tree Tavern, Aberdeen, on Wednesday, the 12th day of December next, at Two o'clock afternoon, at the reduced price above-mentioned, those extensive PREMISES at FOOTER, ABERDEEN, known as the YORK PLACE IRON-WORKS, belonging to Messrs. W. Simpson and Co., together with the whole MACHINERY, FIXED TOOLS, and PATTERNS, contained therein. These works contain large turning, fitting-up, and finishing shops, millwright and pattern shops, large iron foundry, boiler shop, brass foundry, forging, and blacksmith's shops, iron store, warehouses, and counting-house. The whole of the buildings are of the most substantial, commodious, and suitable description for the various trades carried on within them, and are in excellent order, having been erected only 10 years ago, at a large expense.

The situation of the works is most advantageous, being within 100 yards of the dock, and the few-duty payable on the premises is but £200 per annum. No expense has been incurred in the business, and a more favourable opportunity of entering into the business can scarcely occur. In the meantime the works are continued in full operation, and the purchaser will have the advantage of a long established connection.

The demand for machinery and iron goods is very extensive in this city and neighbourhood, and the large and increasing number of steam-vessels now engaged in the trade of the port, together with the railway communication now about completed to the south, must very greatly augment that demand, and consequently add to the value of these works. The stock of iron and other goods belonging to the works, with the loose tools, will, if desired, be given over to a purchaser at valuation.

Inventories of the tools, patterns, and patterns, with plans of the works, may be obtained, and all further particulars learned, on application to W. Simpson and Co., York Place Iron Works, Footers, Aberdeen; or to Ellis Marsden, engineer, 13, Hungerford-street, Strand, London.—Aberdeen, October 9, 1849.

IMPORTANT SALE.

GALVANIZED IRON COMPANY'S WORKS, STAFFORDSHIRE.

MESSRS. OATES & PERREN have been honoured by the directors of the above company with instructions to SELL, BY PUBLIC AUCTION, at the Royal Hotel, Birmingham, on Thursday, the 29th day of November inst., at Twelve for One o'clock precisely, either together or in the following, or such other lots as may be agreed upon at the time of sale, and subject to such conditions as will be then produced, the WHOLE of their newly-opened and improved WORKS and MINES in SOUTH STAFFORDSHIRE—viz.:

LOT I.—PHENIX IRON-WORKS.

All that most desirable and eligible situated FREEHOLD IRON-WORKS and PREMISES, the PHENIX IRON-WORKS, WEST BROMWICH, in the county of STAFFORD. The MILLS and FORGES of which comprise the following PLANT and MAINTENANCE:
An ENGINE, 100-horse power, by Boulton and Watt, in brick engine-house, with 3 25-foot boilers, complete, and recently erected, driving a forge; a 20-inch boiler plate mill, and roll mill, to which are attached 2 punching and straightening machines, driven by an engine of 100-horse power.

An ENGINE, of 60-horse power, by J. and G. Davis, in brick engine-house, with 3 25-foot boilers, driving a forge; an 18-inch boiler-plate and sheet mill; and a 16-inch train for the manufacture of bars, T, and angle iron. With this work is an engine, 20-horse power, driving an 8-inch merchant train, saw and turning lathe—the whole employing 24 puddling and heating furnaces, and being capable of manufacturing from 350 to 400 tons of finished iron per week.

There is also belonging to this work blacksmiths' and wheelwrights' shops, stock-takers, and general offices, &c., together with an ample wharfage of seven boats' length to the Birmingham Canal, and an excellent frontage to the turnpike-road leading from Swan Village, West Bromwich, to Oldbury.

The premises, which are most eligible situated, occupy about two acres of land, the valuable mines under which (belonging to the property) remain ungoten. With this lot will also BE SOLD the following PROPERTY (held on lease for 21 years, of which 15 are unexpired), consisting of an excellent DWELLING-HOUSE, with OUTBUILDINGS and APPURTENANCES, and about FOUR ACRES OF PASTURE LAND, now in the occupation of Mr. Spencer, manager to the said works; a capital WHARF and STORE-YARD adjoining the works; KILN WORKMEN'S COTTAGES, with GARDENS and APPURTENANCES thereunto belonging, now in the occupation of William Williams, John Harley, Richard Horton, and Sarah Summers, together with a capital 8-quarter MALT-HOUSE, adjoining to the said canal, in the occupation of William Downing.

LOT II.—DARLSTON GREEN MINES.

Consisting of about TWENTY-SIX ACRES of these excellent and well-known MINES of COAL and IRONSTONE, situated at DARLSTON GREEN, in the parish of Darlston, and county of Stafford, which have been recently opened by the Galvanized Iron Company, and which are now in complete working order, having been well and completely drained. The PLANT comprises THREE WINDING ENGINES, of 24-horse, 26-horse, and 14-horse power, with SIX PIT SHAFTS, WINDING and PUMPING APPARATUS, the whole of which is in the most efficient state.

The greater portion of the mines remain ungoten, and are held under lease for a term of years, of which 23 are unexpired. The Birmingham Canal runs into the property, for the produce of which there is an abundant demand in the surrounding district.

LOT III.—KINGSWINFORD, CORBYN'S HALL, AND TILED HOUSE ESTATES.

Comprising the valuable MINES of THICK, or TEN-YARD COAL, BROOCH COAL, IRONSTONE, and other MINES and MINERALS now remaining to be gotten under upwards of 203 acres of land, situated in the parish of Kingswinford and county of Stafford; the whole PLANT and MATERIALS of which are now in complete working order, and comprise a sufficient number of SHAFTS, sunk to the various measures, and worked by nine powerful engines; FOUR BLAST FURNACES, in an efficient state, capable of making from 500 to 600 tons per week, with superior blowing engines, of 65-horse and 80-horse power, in brick engine-houses, hot-blast apparatus, complete, 4 casting-boilers, fitted with cranes, &c.; 5 foundries, with air-furnaces and cupolas, drying stoves, &c.; 1 lift to furnaces, with railway and inclined plane from Canal Basin, worked by high-pressure engine, 20-horse power; blacksmiths' shop, 4 hearths, carpenters' and patternmakers' shops, fitting-up shop, with lathes, driven by 4-horse power engine, and large store rooms.

The newly erected and excellently arranged MILL and FORGE comprises the following PLANT and MACHINERY:—An ENGINE, 65-horse power, by J. and G. Davis, with hammer-squeezer, shears, and mine-crushing rolls, train of 3 pairs of forge rolls, sheet and plate rolls, corrugated iron rolls, heating and annealing furnaces, and 19 puddling furnaces—the whole in complete working order. Attached to this work is the GALVANIZING HOUSE, 105 feet by 45 feet, with pickling tanks, metal bath, 2 drying stoves, steam generator, warehouse, with clerks' office and machine house.

The surface land is in the occupation of Benjamin Gibbons, Esq., and others; there are also on the estate 2 desirable residences, Corbyn's Hall, with outbuildings, gardens, &c., in the occupation of Benjamin Gibbons, Esq., and the Tiled House, with ample clerks' offices, stables and garden, suitable for managers' residence, now in the occupation of C. Woodcock, Esq., together with stabling and outhouses, sufficient for the horses employed on the property.

The estate is admirably situated, the Stourbridge Extension Canal and Standhill's Branch passing through the property, and having basins running into the centre of the works. The Kingswinford Branch of the Oxford, Worcester, and Wolverhampton Railway passes through the estate, which is surrounded by excellent turnpike-roads, and is intersected in all parts by tramroads belonging to the property, affording the greatest facility for conveyance, land sale, of coal, &c.

The property will be sold subject to the terms and conditions of the lease under which the same is held. The Tiled House property is held for a term of 21 years, of which 14 are unexpired, with a power of renewal for a further term of 21 years. The Corbyn's Hall property is held for a term of 36 years, from the 1st day of August, 1845, of which 29 years are unexpired.

The auctioneers earnestly beg to call the attention of the iron trade and capitalists generally to this valuable and most eligible property, which, from its situation and the superiority of its mines and erections, ranks among the first iron-works of South Staffordshire; they have also received instructions to state, that every reasonable advantage will be given to purchasers in the mode of payment, for which an extended period of time will be allowed, on proper security being given.

To view the property, and for further information, apply to Mr. Spencer, manager, Phoenix Iron-Works, West Bromwich; William Manders, mine bailiff, Darlston Green Colliery; Mr. Woodcock, Tiled House, Kingswinford; Mr. Job Taylor, mine agent, Bromley, Kingswinford; Messrs. Westmacott and Pinner, solicitors, 28, John-street, Bedford-row; Mr. Samuel Fry, solicitor, Walbrook, London; or of the auctioneers, Stourbridge; or at the office of the Galvanized Iron Company, No. 3, Mansion House-place, London.—Particulars of the property, with lithographic plans, will be distributed one fortnight prior to the sale, and may be had at the principal lines of the neighbourhood; Herald Office, Birmingham; Mercury Office, Liverpool; or at the above-named places of reference.

PROPERTY FOR SALE IN SWEDEN.—

For TEN THOUSAND POUNDS, an IRON MINE, with BUILDINGS, a MILL, and about TEN THOUSAND ACRES of Forest and Land, TO BE SOLD BY PRIVATE CONTRACT. The iron is of first-rate quality, marked K.L.P., and, since 1845, marked A.W.K.A., and is sold to Sheffield and the American markets. There are splendid hunting grounds (beats, foxes, hares, and fowls), and fisheries of salmon, &c., &c., on the estate, which has a most advantageous situation near the Baltic.

Apply personally, or by letter (within fourteen days), to L. Hollenius, merchant, Newcastle-on-Tyne.

IMPORTANT TO CAPITALISTS.

VALUABLE SLATE VEIN IN THE MARKET.—The Proprietor of a valuable SLATE VEIN, or BED, covering an area of 63 acres, one-fourth of a mile in width, and rising to an altitude of fully 900 feet (the property of which is freehold), is desirous of obtaining a PURCHASER for the SAME, who will be allowed advantageous terms, with an assured certainty of ample returns for the needful expenditure required for carrying on extensive operations; and which, from the nature of the slate formation—stratum rising over stratum—ample space (with a deep fall) for rubbish deposit, free drainage, dispensing with the usual adjunct machinery, will not necessarily reach a tenth-part of the average working outlay of the generality of slate quarries. The Slate Vein, to which attention is drawn in this advertisement, is situated on the margin of a navigable lake, in Carnarvonshire, North Wales, within six miles (four of which is the post-road) of an excellent shipping port.

Carnarvonshire is noted as the great emporium of the slate trade, which affords constant and lucrative employment to thousands, at the same time enriching the proprietors. The surveys of three eminent engineers have been followed up by reports of a highly satisfactory character as to the quality and quantity of this eligible slate formation, and may be had, with a view of the plan and sections, on application to Griffith Davies, Esq., Guardian Insurance Office, London; or Mr. W. Dew, surveyor, Llangedn, Anglesea.

A COLLIERY TO BE LET, situate near the DEARNE and DOVE CANAL and the SOUTH YORKSHIRE RAILWAY, with ENGINES, WHIMSEY, and PITS, now working, in HEMINGFIELD, and near BRAMPTON BULL HEAD.—

The COAL is about 3 feet 5 inches thick, producing about 4000 tons per acre. The colliers' wages for getting and drawing to the pit bottom are now about 1s. 5d., the rent about 5s., and the sale now at the pit 4s. 6d. per ton. The coal sells readily at Doncaster, Hull, Bridg, Grimsby, and Louth, at Galahborough and Lincoln, and along the banks of the Humber and Trent; and extensive new markets will be soon opened by means of the South Yorkshire Railway. In some years, six acres of the bed have been got and sold, and if six acres more can be disposed of down the railway, an enterprising company, of sufficient capital, may soon realise large profits from the Colliery. Application may be made to Mr. Birks, of Hemingfield, near Barnsley, of whom further particulars may be had.

PONTCSYLLTE FORGE, near RUABON, DENBIGH-SHIRE.—

TO BE LET (with immediate possession), all that VALUABLE IRON WORK called the PONTCSYLLTE FORGE, with its POWERFUL STEAM-ENGINE, SHINGLING and DRAWING-OUT HAMMERS, BOLTING-DOWN and BOILER PLATE ROLLS, HEATING and BALL FURNACES, IRON SHEARS and LATHE; manager's house, offices, warehouse, smiths' and carpenters' shops, and pattern rooms. The work compactly roofed in, inclosed by a high stone wall, and possessing every convenience and requisite for a WEEKLY MAKE of SIXTY TONS of merchant-bar and of boiler-plates.

The PONTCSYLLTE FORGE is admirably situated on the margin of the Ellesmere and Chester Canal, being separated only by the towing-path, and possessing near and convenient communications by means of railways, leading from the premises into the heart of the Ruabon Collieries; to the Shrewsbury and Chester Railway, at their Llangothen road and Cefn Station, and by the canal to every part of the kingdom. A more desirable opportunity than the present, for the profitable employment or investment of capital, is rarely offered to the public—coals being cheap and abundant, wages and pig-iron low, and rent of premises moderate. For further particulars, apply to Mr. Tomlinson, 15, Fenwick-street, Liverpool; or to Thomas Roberts, Pontcsyllte, who will show the premises.

NORTH WALES.—VALUABLE SLATE QUARRIES

FOR SALE.—TO BE SOLD BY PRIVATE CONTRACT, those VALUABLE QUARRIES, called the CAMBRIAN SLATE QUARRIES, situate in the neighbourhood of FESTINIOG, in the county of Merioneth. They have for some time been in full operation, and producing a material of first-rate quality, at a comparatively trifling cost, being in the side of a mountain, water free, and not having more than from 10 to 12 feet "baring." The above property is well worth the attention of capitalists, both from its position and capability of producing, at a slight additional outlay, an almost unlimited quantity of slates.—For particulars apply to Mr. MICHAEL FORSTER, Mining Engineer, Conway, North Wales.

N.B.—These quarries are sufficiently opened out to develop both the quality of the slates and the capability of the extension of the works. Conway, November 1, 1849.

SMELTING, OR OTHER COAL-CONSUMING WORKS.

PORT TENANT, within the Harbour of SWANSEA, or RED JACKET, opposite to Briton Ferry, in the port of NEATH, offers very advantageous Sites for COPPER SMELTING, IRON, TIN, GLASS, PATENT FUEL, or other COAL-CONSUMING WORKS, with every convenience for shipping the goods there manufactured.

For particulars, apply to Mr. Tomlinson, 15, Fenwick-street, Liverpool; or to Thomas Roberts, Pontcsyllte, who will show the premises.

BUILDING-STONES, of every description, will be delivered by canal, free of carriage, at the lowest expense.

Application to be made to Mr. Kirkhouse, Neath, Glamorganshire.

N.B.—All vessels entering Port Tennant are liable to half dues only, under the last Swansea Harbour Act, and to no Corporation dues whatsoever.—The dues for Neath Harbour are of very trifling amount.

JOSEPH DEELEY, of the LONDON and NEWPORT

IRON-WORKS, NEWPORT, MONMOUTHSHIRE, respectfully recommends to the notice of the public his PATENT FURNACE, which has been effectually tested, and is now in constant use at the above works, where it may be inspected by all persons interested. This furnace operates without the aid of any motive-power to impel the air. An immense saving is the consequence, both in erecting and working. One-third of the coke usually required is more than sufficient; a loss of only 22 lbs. to the ton being sustained in smelting.

The IRON MELTED in this furnace also undergoes an extraordinary improvement in quality.

SCOTCH PIG and SCRAP are returned equal to the best cold-blast in point of strength, and capable of being chipped or filed with the greatest facility.

FOUNDRIES USING the FURNACE may exist in the most densely populated cities, without causing the least nuisance—all smoke, dust, and noise being entirely avoided.

The FOREIGN PATENT RIGHTS of the above are FOR DISPOSAL, affording capitalists the most favourable opportunity for profitable investment.

APPLY TO THE PATENTEE AS ABOVE.

CWMBRAIN PATENT IRON REFINERY.—

The PROPRIETORS of IRON FORGES and MILLS are respectfully INVITED to MAKE TRIAL of Mr. BLEWITT'S REFINED IRON, or METAL, PREPARED by a NEW PATENT PROCESS.

whereby the IRON is completely FREED from the IMPURITIES CONTRACTED in the BLAST-FURNACE, and, by judicious mixtures, rendered applicable to every kind of manufacture. Hereofore, the metal usually sold in the market has been produced from the worst pigs, scraps, and refuse of some particular blast-furnace, or set of furnaces, without any mixture, or any regard to quality, or the purpose for which it might be required. The PATENT METAL IS PREPARED ON SYSTEM, and TO ORDER, for any of the following purposes:—

1. For BOILER and TANK PLATES.

2. For TIE-PLATES, commonly called COKE-PLATES.

3. For STRONG CABLE BOLTS, RIVET, and ANGLE IRON.

4. This COMPOUND PUDDLED, beat under the hammer into a bloom, reheated, and rolled into a 6 or 8-inch bar, makes TOPS and BOTTOMS for FLANCH and OTHER RAILS, of every superior quality, and attended with less waste than any other kind of iron used for that purpose. It is also well adapted for nail-roads, horse-shoes, and for other ordinary uses of the blacksmith.

The PATENT METAL is marked with a squirrel, and the initials "R. J. B.," and is to be had only at the "Cwmbrain Iron-Works," near Newport, Monmouthshire.

STURVE'S PATENT MINE VENTILATOR.

Cost—£150.

TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 300,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 20,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very deep; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of six months at the Eaglesham Colliery, near Neath, working under a rarefaction of 3 1/2 to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rattle a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to Mr. WILLIAM PRICE STURVE, Swansea, CIVIL ENGINEER and MINERAL SURVEYOR.

BANK OF AUSTRALASIA (Incorporated by Royal Charter, 1839), 8, Austinfriars.—

The Court of Directors GRANT BILLS and LETTERS of CREDIT on the undermentioned branches: viz.—Sidney, Maitland, Melbourne, Geelong, Hobart Town, Launceston, and Adelaide, on terms which may be learnt on application, either at their offices, 8, Austinfriars, or at their bankers, Messrs. Smith, Payne, and Smiths.

By order of the Board, WILLIAM MILLIKEN, Sec.

LOANS ON DEBENTURES.—

The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.

By order, D. RANKINE, Treasurer.

125, George-street, Edinburgh, May 30, 1849.

ATMOSPHERIC AND LOCOMOTIVE ENGINES FOR SALE.

MR. STARLING is instructed by the Directors of the LONDON and BRIGHTON RAILWAY COMPANY to Dispose of those HIGHLY-FINISHED ENGINES, by Messrs. MAUDSLY & Co., lately used on the ATMOSPHERIC RAILWAY.

Mr. S. has also for disposal several new and second-hand SIX and FOUR-WHEELED LOCOMOTIVES—particulars on application at his office, 13, Change-alley.

London, November 14, 1849.

WANTED.—A LOCOMOTIVE-ENGINE, with four wheels

coupled, in good working condition, with cylinders not less than fourteen inches in diameter, and wheels from four to five feet diameter.

Address, Mr. John Lancaster, Wigan.

TO CONTRACTORS, AND OTHERS.—TO BE SOLD

(a Bargain), A QUANTITY OF RAILWAY GREASE; now laying at Dorking, near London.—Apply to PICKFORD & CO.

OLD IRON.—WANTED, FROM THIRTY to FORTY TONS

of OLD BOILER-PLATES, broken or useless PUMPS, and SCRAP-IRON, and generally together with a continuous monthly supply.—Lowest price per ton, on board, at Liverpool or London, addressed to Capt. Horton, Jamaica Coffee-house, Cornhill, London, will receive immediate attention.

WANTED, by a GENTLEMAN of many years' practical

experience in the WORKING OF LEAD and other MINING CONCERNS, a SITUATION AS MANAGER. First-rate references can be given.

Address, "J. C.," Post-office, Newcastle-on-Tyne.

MONEY.—WANTED TO BORROW, the sum of SEVEN

THOUSAND POUNDS, by the owner of a MINERAL ESTATE, situated a short distance from a shipping port, who is desirous to OPEN an EXTENSIVE COLLIERY on the same. Underneath lies several SEAMS or VEINS of FIRST-RATE STEAM and HOUSE COAL, which can be worked to great advantage.

Applications to be made to "D. J.," care of the Editor of the Mining Journal, 26, Fleet-street, London. NONE BUT PRINCIPALS NEED APPLY.

MINING PROPERTY.—MR. JAMES HERRON, MINE

AGENT, 33, CLEMENTS-LANE, LOMBARD-STREET, has received instructions to DISPOSE OF SHARES in FIRST CLASS MINES, paying regular dividends, and yielding to the purchaser from 17 1/2 to 25 per cent. upon his outlay. He is also in a position to transact business in the following—viz., East Wheel Rose, West Canada, Stray Park, Tincroft, Tamar Consoils, Altons, Treviskey, Trethellan, North Rosekear, Condurrow, Wellington, Trelawny, East Buller, Bedford United, and Holmbush.

MR. T. A. READWIN, MINING OFFICES,

2, WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.

MR. H. B. RYE, has BUSINESS to transact, both as BUYER

and SELLER in all the leading MINES in Cornwall, Devon, and Wales.

For particulars, apply at his office, 77, Old Broad-street, City.

MR. R. TRIPP, MINING AGENT AND SHAREBROKER,

BEDFORD CHAMBERS, BAMPTON-STREET, EXETER.

MR. HENRY VATCHER, MINING AND RAILWAY

SHAREBROKER, EXETER.

Competent and experienced AGENTS provided to INSPECT MINES, at the shortest notice.

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND

AND MINING SURVEYOR.

No. 15, OLD BROAD-STREET, LONDON.

JAMES LANE, MINING SHARE DEALER,

80, OLD BROAD-STREET, LONDON.

A STURIAN MINING COMPANY.—

Notice is hereby given, that, pursuant to a Resolution of the Board of Directors and Liquidators, a SPECIAL GENERAL MEETING of the Shareholders of this Company, will be HELD on Tuesday, the 27th day of November, instant, at the Company's offices, 9, Austinfriars, London, to APPROVE OF, or DISSENT FROM, the ACTS and PROPOSALS of the Board of Directors and Liquidators, in respect to the LIQUIDATION, DISSOLUTION, or RE-CONSTITUTION of the Company; and to take into consideration such other proposals as may be submitted for such purposes, or such other matters as may relate to the general interests of the Company.

G. COLQUHOUN, Chairman.

GUADALCANAL SILVER MINING ASSOCIATION.—

Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of shareholders will be HELD on Thursday, the 29th of November inst., at One o'clock precisely, at the offices of the association.

By order, H. T. RYDE, Secretary.

34, Broad-street-buildings, City, Nov. 9, 1849.

DUISBURG IRON-WORKS AND MINES,

IN WESTPHALIA, CLOSE TO THE RHINE.

Managed in England according to the principles of the "Cost-book System," and in Prussia as a Société en Commandite, under laws limiting the liability of the shareholders to their personal subscription.

Company's Offices, 28, Moorgate-street, City.

ASSAYING AND ANALYSIS.—

Mr. MITCHELL begs to inform the MANAGERS, &c., of MINES, SMELTING-WORKS, and MANUFACTORIES, that he still continues to CONDUCT ASSAYS and ANALYSES of all PRODUCTS, metallurgical and manufacturing, at his LABORATORY,

23, HAWLEY-ROAD, KENTISH TOWN, LONDON,

to which address communications are to be forwarded.—Instruction in all branches of assaying and analysis as usual.

BICKFORD'S PATENT SAFETY FUSE.—

The Patentees of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants, Mine Agents, Railway Contractors, and all persons concerned in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE has now a thread wrought into its centre, which being patent right, infallibly distinguishes it from all imitations, and ensures the continuity of the gunpowder. The Safety Fuse is now protected by a Second Patent, and manufactured by greatly improved machinery.

BICKFORD, SMITH, & DAVEY, Cambrone, Cornwall.

WIRE ROPE.—

The Undersigned beg to inform the public, that they have become SOLE LICENSEES of Mr. ANDREW SMITH, for the MANUFACTURE and SALE of his PATENT WIRE ROPE; and having fitted their premises with his very superior improved machinery, have only to assure those who may favour them with their orders, that the same care and attention shall always be bestowed which, they have reason to believe, has secured them such general support.

LIGHTNING CONDUCTORS, SIGNAL CORD, and SASH LINE, always in stock.

Patent Wire Rope Works, No. 39, High-street, Wapping, London.

OILS.—

BROTHERTON & CO. beg to call the attention of all parties EMPLOYING STEAM POWER to their PATENT PURIFIED OILS, for the economical working of STEAM-ENGINES and MACHINERY and BURNING IN LAMPS. The adoption of its use effects a saving of 25 per cent. over any other oil, and its properties are such as to greatly preserve machinery bearings.

BROTHERTON & CO.,

HUNGERFORD WHARF, CHARING-CROSS, LONDON.

TO THE OWNERS OF COLLIERIES, MINES, PLAN-

TATIONS, SAW-MILLS, &c.

IMPROVED CIRCULAR SAWS, MILL-SAWS, FILES, Machine Irons, and Cutting Knives, Steel in Blister, Bar, Cast, Shear, and Drift Steel, Springs for Railways and Common Roads, Iron Washers, Bolts, Hammers, &c., on the most PERFECT and ECONOMICAL PRINCIPLES, MANUFACTURED with DISPATCH, by

BLAKE AND PARKIN,

THE MEADOW STEEL-WORKS, SHEFFIELD.

Transactions of Scientific Societies.

MEETINGS DURING THE HUNTING WEEK.

THIS DAY.....	Asiatic—8, New Harrington-street.....	2 P.M.
MONDAY.....	Statistical—53, St. James's-square.....	8 P.M.
	British Architects—16, Grosvenor-street.....	8 P.M.
	Chemical—742, Strand.....	8 P.M.
	Medical—3, Bolt-court, Fleet-street.....	8 P.M.
	Pathological—21, Regent-street, Waterloo-place.....	8 P.M.
TUESDAY.....	Linnean—Soho-square.....	8 P.M.
	Civil Engineers—1, Abchurch-lane.....	8 P.M.
	Society of Arts—Adolpho.....	8 P.M.
WEDNESDAY.....	Geological—Somerset House.....	8 P.M.
THURSDAY.....	Royal—Somerset-house.....	8 P.M.
	Antiquaries—Somerset-house.....	8 P.M.
	Royal Society of Literature—4, St. Martin's-place.....	7 P.M.
	Naturalists—41, Tavistock-street, Covent-garden.....	7 P.M.
FRIDAY.....	Philological—Library.....	8 P.M.
SATURDAY.....	Royal Botanic—Inner Circle, Regent's Park.....	3 P.M.
	Westminster Medical—17, Saville-row.....	8 P.M.

NOVEMBER 13.—JOSHUA FIELD, Esq., (President,) in the Chair.

The conclusion of the paper drew attention to the magnitude of the masonry works now advancing at Grimsby, and for the formation of which the coffer-dam was erected, and which, when completed, from the design of Mr. Rendel, the chief engineer, and under the superintendence of Mr. Adam Smith, the resident engineer, will form, perhaps, one of the most useful, as well as the most important, maritime works of modern times. The paper announced to be read at the meeting of Tuesday, November 20th, was "A Description of the Old Southend Pier Head, and the extension of the Pier, with an inquiry into the causes and ravages of the 'eredo Navalis,' and the means hitherto adopted for preventing its attacks," by Mr. John Paton.

We now proceed to apply the illustration given in our last to the old doctrine of the expansion of matter during the absorption of heat, and its contraction whilst heat is evolved. On its passage through the ignited air the air is decomposed; the oxygen is converted into carbonic acid, and the nitrogen is evolved; the two gases occupying together a considerably greater space than they did before. They have, therefore, become, by expansion, absorbents of heat, and should, consequently, impart cold to the matter by which they are surrounded. But, on applying heat to frozen water, we find that the ice is first dissolved—the water then increases in volume, instead of contracting—and, ultimately, steam is produced with vast extension of the space occupied.

Here, then, we have evidence diametrically opposed to the existing doctrine of the entity, or individual existence of heat, or caloric. And the notion of fire on solid matter, is not less instructive. If a piece of metal is held in a flame, it becomes first warm, then "red hot," and at length raised to a white heat; the amount of expansion corresponding with the increment of heat yielded by the flame, itself an *expanding body*. If, however, we regard the flame as matter in a highly negative state, and hence extracting from the metal the electricity which holds its particles together, conclusion is inevitable, that the metal must expand in proportion to quantity of electricity withdrawn from it. And, if the negative state of the flame be rendered sufficiently intense entirely to overcome the electrical affinity, or bond in matter, between the particles of which the mass is composed, to disintegrate, to decrystallize the metal, like ice, it will first pass into a fluid state, and ultimately assume the gaseous form!

inductive reasoning, infinitely more simple than that which has hitherto unconsciously sustained the old doctrine, is thus in all honesty applied to subversion. That doctrine had, as we have previously remarked, nothing to support it but those hasty assumptions which were mistaken for facts. Nothing in the way of practical experiment could possibly demonstrate it. It was too illusive to be illustrated. Indeed, any attempt at scientific elucidation could only terminate in the dissipation of it. It would be intended to establish. On the other hand, the proposition, logically submitted by Franklin Coxworthy, is chemically proved by reference to the most familiar facts.

What, then, is the duty of those to whom the public look for instructive conclusions from data thus freely afforded? We essay to perform our portion of it. We make the denial of what has been deemed to be established on a truthful basis, patent to our readers; to that denial we add appreciable argument; and that argument we prove to be correct, by the undeniable processes of Nature herself. Let those who assume the designation or permit themselves to be called philosophers, or men of science, state their functions. Have they the truth on *their side*? Where are the facts? Is it on ours? Who is he, who are they, to whom truth should be the prevailing aim, the only useful attainment of investigation, and will not surrender their prejudices or misconceptions to her sacred summons? If they are right, they owe it to society to put down Franklin as unworthy, as a vain pretender, not by sneers, nor generalities, nor assumptions, nor assertions; but by patient examination, minute developments, reasoning upon proved premises, and demonstrating by unmistakable results. And if they are wrong, we thrust aside from before them the very veil, on which is inscribed, "Where ignorance is bliss 'tis folly to be wise;" and bringing them, thus, face to face, with their single opponent his array of facts, cite them to controversy or confession, by reminding them that they can no longer remain in the beatitude of ignorance, nor ever be allowed to commit a wrong upon the present generation in the delusion of satisfied wisdom. We hope, in our next, to pluck another from the coronal of their folly.—S.: *Cheltenham Journal*.

WATERFORD, WEXFORD, WICKLOW, AND DUBLIN RAILWAY.—The directors of this company intend to apply to Parliament for authority to shorten the line and reduce the nominal amount of the shares. It appears the dissenting shareholders intend to oppose the measure, and seek a dissolution of the company. The shareholders' committee, assisted by Mr. C. Nash, have been ordered to plead to the actions for calls; and the Court of Exchequer has granted leave to examine witnesses abroad and in Ireland for them.

Among the literary publications of this period of mental progress, calculated to stimulate the young mind to healthy exertion in the attainment of scientific truths, it is with much gratification we call the attention of our readers to a series of rudimentary works now publishing by Mr. John Weale, of High Holborn, and which, when complete, will form a library of scientific knowledge, consisting of 75 volumes, of treatises on all the various useful arts, sciences, and studies, by the most approved and popular writers on the various subjects, and obtainable at a price which will place them within the reach of all who have to earn their daily bread, to many of whom a knowledge of the elements of science is a positive gain in the common pursuits of life, and to all a means of diverting the mind and habits from gross and vulgar amusements, and presenting noble and worthy objects for consideration.

Among these rudimentary volumes, is "*A Dictionary of Terms used in Civil and Naval Architecture, Building and Construction, Early and Ecclesiastical Art, Civil and Mechanical Engineering, Fine Art, Mining, Surveying, &c.*," to which are added, *Explanatory Observations on numerous Subjects connected with Practical Art and Science*;" the two first parts of which are now before us, and fully support that eminence in the choice of subjects, method of arrangement, and getting-up, which has always marked Mr. Weale's publications. With respect to the value of elementary treatises, similar to those under notice, it has been truly said, that "those who are in the ship of science should remember that the disciples cannot arrive without the aid of boats;" and the writer observes, that "popular treatises are to science what boats are to large ships; they assist persons in getting on board; but as no one would trust himself in a weak or inefficient boat, so no one ought to begin the study of science with an imperfect guide. It sometimes happens that popular treatises are made to appear easy by the omission of those very details which are most essential to be known; they state results without going through the necessary processes by which those results are obtained; they deal largely in facts, and leave principles untouched." For avoiding this error, Mr. Weale has confided to men of known standard talent, who are masters of their respective subjects; and judging from the two parts of the "dictionary" under notice, which is, in fact, an encyclopædia of science in miniature, we have no fear that the whole series will fully support the compiler's well-earned character for public usefulness, and no hesitation in recommending them to the notice of our readers as most excellent volumes for the study of youth, and not of less value to the consideration of those of riper years.

The following little essay on the blow-pipe will give a tolerable good idea of the general character of the work, and the pleasing and familiar style in which the subjects are treated.

BLOW-PIPE.—The blow-pipe is a most valuable little instrument to the mineralogist, as its effects are striking, rapid, well-characterized, and pass immediately under the eye of the operator. The most efficacious flame is produced by a regular, moderate stream of air; while the act of blowing with more force, only has the effect of fatiguing the muscles of the cheeks, depressing the chest, and at the same time renders the flame unsteady. The student should fill his mouth with air, so as to inflate the cheeks moderately, and continue to breathe without letting the air in the mouth escape; the blow-pipe may then be introduced between the lips, and while the breathing is carried on through the medium of the nose, the cheeks will expel a stream of air through the blow-pipe; and by replenishing the mouth at each expiration, and merely discharging the *surplus* air through the nostrils, a facility will be acquired of keeping up a constant stream of air. The best name for the purpose of this instrument is that of a thick wax candle, such as are made for the lamps of carriages, the wick being snuffed to such a length as to occasion a strong combustion; it should be deflected a little to one side, and the current of air directed along its surface towards the point; well-defined cone will be produced, consisting of an external yellow, and an internal blue flame. At the point of the former, calcination, the oxidation of metals, roasting of ores to expel the sulphur and other volatile ingredients, may be accomplished; and by the extreme point of the latter (which affords the most intense heat) fusion, the deoxidation of metals, and all those operations which require the highest temperature, will be effected. The piece of mineral to be examined must necessarily be supported on some substance; and for the earths, or any subject not being metallic, or requiring the operation of a flux, a spoon or pair of forceps made of platina will be found useful; but, as the metals and most of the fluxes rest on platina, the most servicable support, for general purposes, will be a piece of sound, well-burnt charcoal, with the bark scraped off, as free as possible from knots or cracks; the piece of mineral to be examined should then in general be larger than a pepper-corn, which should be placed in a hollow made in the charcoal; and the first impression of the heat should be very gentle, as the sudden application of a high temperature is extremely liable to destroy those effects which it is most material to observe. Many substances decrepitate immediately they become hot; and when that is the case, they should be heated red, under circumstances which will prevent their escape; this may be effected, with the earthy minerals, by wrapping them in a piece of platina foil, and, with the metallic ores, by confining them between two pieces of charcoal, driving the point of the blow-pipe through a small groove towards the place where the mineral is fixed, which means a sort of reverberatory furnace may be formed. The principal phenomena to be noticed are, phosphorescence, ebullition, intumescence, the exhalation of vapours having the odour either of sulphur or arsenic (the latter arising from the presence of arsenic), decrepitation, fusibility; and, amongst the fusible minerals, whether the produce is a transparent glass, an opaque enamel, or a bead of metal. Having first made some observations on a particle of the mineral alone, either the real ore or a fresh piece should be examined with the addition of a flux, more particularly in the case of the ores, as the nature of the metal may be generally decided by the colour with which it tinges the substance used. The most eligible flux is glass of borax; a piece about half the size of a pea being placed on the charcoal, is to be heated till it melts; the particle of ore being then taken in a pair of forceps, is to be pressed down in it, and the heat applied; or, should the mineral not be inclined to decrepitate, it may be placed on the charcoal, and two or three pieces of glass of borax, about the size of a pin's head, placed over it; and on using the blow-pipe, the whole will form itself into a globular bead.

The Diamond Rock, and other Poems. By HENRY H. BREEN, author of the *History of St. Lucia.* London: W. Pickering.

Unusual as it is for us to notice light poetical works, or even prose publications, unless of a scientific character, there is something so simple, yet truthful and touching, in some of the poems in this collection, that we are induced to call attention thereto. The *Diamond Rock* is founded on a striking incident in the naval tactics of Britain, in which, in 1805, Capt. Maurice, with a crew of 190 men and boys, having been placed on this rock in the ocean, about one mile from the Island of Martinique, and only one mile in circumference, defended it with a few muskets and a few barrels of powder, against two frigates, which he beat off, and lost upwards of 50. Having expended their ammunition, they capitulated, and departed on honourable terms. Among the more striking compositions are "A Last Dive for Erin," "The Monks of La Trappe," "The Cloud in the West," "The African Daughter," "Ode to Queen Victoria," &c.

ESTABLISHMENT OF A SCIENTIFIC INSTITUTION IN PORTSMOUTH DOCKYARD.
—We are glad to learn that a "Watt Institute" has been established amongst the labourers of the great steam-factory works of Portsmouth Dockyard, and a *soirée* was held at the Hall of the Beneficial Society, on Tuesday evening, to celebrate its foundation. Mr. Murray (the superintendent engineer of the dockyard) was called to the chair, and amongst the company (about 600 in number) were some of the leading scientific members of the Government establishments, the Naval College, the service, and the inhabitants generally, and a brilliant assemblage of ladies. Mr. Murray, in an eloquent address, exhibited the advantages of such institutions, and their influence on the members and the public generally. A library, reading-room, and evening classes will be formed in this new institute, and lectures and public readings upon the most edifying and instructive subjects connected with scientific pursuits periodically given. Capt. James, R.E., of this dockyard, afterwards gave an able exposition respecting the origin of coal and iron, the geological position and extent of our iron and coal mines, and the mode of manufacturing iron from its ores, explaining the formation of coal from decayed trees, vegetable matter, &c. Mr. Spence, foreman of the steam-factory, delivered a spirited address on the nature of mechanics' institutions, showing how much the working classes had improved their condition in their own hands. The meeting was also addressed by Mr. Fincham, master shipwright of the dockyard; the Rev. T. Roe chaplain to the contractors' men in the dockyard; the Rev. G. Barton, incumbent of St. George's, Portsea; Mr. Chigwell; Mr. Sheppard, &c. From the sentiments expressed and the good feeling that was manifested, this institution seems to promise to be of much future service to the artisans of the port.

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THE IRON-WORKS OF SUSSEX.

The following notice of the Iron-works of Sussex, by Mr. M. A. Lower, is both valuable and interesting. The author adduces evidence to justify the belief that iron-works were established in Sussex in the time of the Romans—and probably before they set foot in the island; and he thinks it not improbable that the trade may hereafter be revived by the introduction of anthracite fuel. The earliest actual record of the iron trade in Sussex is believed to be the murage grant of 1266, made by Henry III. to the town of Lewes, which empowers the inhabitants to raise tolls for the repair of the town walls:—"From that period we have data, however slight, for the history of the manufacture. In 1290 a payment was made for the iron-work of the monument of Henry III. in Westminster Abbey, to Master Henry, of Lewes. * * In 7th Edward I, iron appears to have been smelted on St. Leonard's Forest, and the works were afterwards carried on by the Crown. In 1300, according to Stow, the ferrones, or iron-mongers of London, made complaint to Elin Russell, mayor of London, that the smiths of the wealds (*fabri de waldis*) brought in irons for wheels which were much shorter than they ought, according to custom, to be, to the great scandal and loss of the whole trade of iron-mongers; and required a remedy, which was accordingly granted. From some incidental notices occurring about this period, it appears that the iron manufactured near the Sussex coast was conveyed to London by water—a proof of the impassable state of the roads in those days. In the 13th year of Edward II, Peter de Walsham, sheriff of Surrey and Sussex, by virtue of a precept from the king's exchequer, made a provision of horse-shoes, and nails of different sorts (*providencias de ferria equorum et clavus pro eisdem diversimode fabricie*), for the expedition against the Scots. The number furnished on the occasion was 3000 horse-shoes and 29,000 nails, and the expense of their purchase, from various places within the sheriff's jurisdiction, and their delivery in London, by the hands of John de Norton, clerk, was 147. 13s. 10d. The Nones return for the parish of Lynch, in Western Sussex, proves the existence of the iron trade there in 1342. It also affords an early instance of metals being subject to tithes: '*Item, decima ferri ecclesie predictae valet per annum decem solidi*.' The rector likewise received ten shillings for the tithe of iron ore."

The manufacture is supposed to have increased during the fifteenth century; though Mr. Lower observes, this supposition is based more on the flourishing state in which we find the trade in the early part of the sixteenth century than on documentary evidence:—"There is little doubt that ordnance was made in this county in the fifteenth century. It is believed that some of the old bandied guns of wrought-iron, preserved in the Tower of London and elsewhere, and dating so far back as the reign of Henry VI., were of Sussex manufacture. In the tenth volume of the *Archæologia*, is an engraving from a drawing by James Lambert, jun., of a mortar, formerly at Eridge Green, in the parish of Frant, and the account given of it is as follows:—"It has always been understood that this mortar was the first that was made in England. . . . [It] now lies at Eridge Green, and has served for many years for the amusement of the people on a holiday or fair day, when they collect money to buy gunpowder so throw the shell to a hill about a mile distant. The weight of the shell sinks it so deep into the earth, that it costs no little pains to dig it out after each discharge, which is repeated as long as the money lasts. The chamber of the gun is cast-iron, the other part, as is evident, wrought. From the engraving, the chamber appears to have been polygonal, and the tube to have consisted of many small bars or rods, bound together by nine hoops. This was the original method of constructing these tremendous engines of war."

"These hooped guns were at length superseded by cannons cast in an entire piece, and bored, as at the present day. The invention of gun-founding is ascribed to the French, who appear to have used cast pieces many years before the introduction of the art into this country. The first iron cannons cast in England were manufactured at Buxted, in this county, by Ralph Hoge, or Hogge, in 1543 (85 Henry VIII.). This founder employed, as his assistant, Peter Baulde, a Frenchman, whom he had probably brought over to teach him the improved method; and Peter Van Collet, a Flemish gunsmith, about the same time, 'devised and cast mortar pieces from 11 to 19 inches bore; for the use whereof they caused to be made bombs, or certain hollow shot, of cast-iron, to be stuffed with fire-works, &c. And after the king's return from Bullen, the said Peter Bauld, by himself, in 1 Edward VI., made ordnance of cast-iron, of divers sorts, as *fauconnets, faucons, minions, akers*, and other pieces."

"The manufacture of heavy ordnance gave a great impulse to the iron trade. Many foreigners were brought over here to carry on the works. This, perhaps, may account for the number of Frenchmen and Germans whose names appear in our parish registers about the middle of the sixteenth century. New works were established, and ultimately almost every landed proprietor in the districts where the ore was found became an iron-master. Among the persons engaged in the trade at this period was Richard Woodman, one of the ten Protestant martyrs burnt at Lewes, in 1557. He was a native of Buxted, where he probably learned the business. At the time of his apprehension, at the beginning of Queen Mary's reign, he resided at Warbleton, and carried on an extensive trade. In one of his examinations before the Bishop of Winchester, he says, 'Let me go home, I pray you, to my wife and children, to see them kept, and other poor folk that I would set a-work, by the help of God. I have set a-work a hundredth persons, ere this, all the year together. Several Sussex families, enriched by the iron manufacture, assumed the rank of gentry about this time. This rapid growth of the trade in the wealds of Sussex and Kent was viewed with disfavour by many. Archbishop Parker, writing to Queen Elizabeth, in 1570, says, 'Sir Richard Sackville intends, as I was credibly informed, in this wood (*Longbeech Wood*, in Westwell, Kent) to erect up certain iron mills, which *plague*, if it shall come into the country, I fear it will breed much grudge and desolation.' About 1572 much ordnance was exported, in consequence of the Lord Admiral having granted a license for that purpose to Sir Thomas Leighton, who had made use of one Garret Smith to obtain it of the admiral, and who was, in return for his intervention, to enjoy the deputyship, with a fourth part of the profits; 'but the merchants of London, knowing how this might furnish the enemies' ships to obstruct their trade, and bring other great damages upon the queen and her subjects, petitioned her, in a great body, to withdraw this license.' The petition was not presented ('whether it were shuffled off by some about the queen'); however, they petitioned again, and in Sept. 1572, a proclamation strictly restrained all transport of iron and brass ordnance, and forbade the owners of all iron-works, furnaces, or forges, to make any kind of ordnance larger than a minion. In defiance of these measures, however, the surreptitious exportation of Sussex cannon went on for some years longer. In 1587, the Earl of Warwick, master of the ordnance, dispatched 'a gentleman of his, one Mr. Blincoe,' into Sussex to summon all the gun-founders of the county up to London, to understand his pleasure respecting their further continuance of the manufacture. 'Henry Novel, and the rest of that occupation,' obeyed the summons, and the matter was referred to the arrangement of Mr. Hockenal, the deputy-master of the ordnance, and Mr. Blincoe. The result was, that a fixed quantity of cannon should be cast annually, for the necessary provision of our own navigation; a certain proportion being allowed to each founder. It was also stipulated that no ordnance should be sold except in the city, and not even there but to such merchants 'as my lord or his deputy should name.' The bonds into which the iron-masters entered on this occasion seem to have been little regarded by them; for, on August 8, 1589, Thomas Lord Backhurst wrote a letter to the justices of Lewes Rape, complaining of their neglect. 'Their lordships do see the little regard the owners of furnaces and the makers of these peeces have of their bonds, and how yt importeth the state that the enemy of her majesty should not be furnished out of the lande with ordnance to annoy us.' The lord-treasurer goes on to direct the magistrates to enforce the provisions of the master of the ordnance. Another letter, from the same officer to the justices of the three eastern rapes, dated 6th October, 1590, directs them as to 'straighter restraint of making shot and ordnance,' and to take bonds of 1000*l.* each of every furnace-owner and farmer; and also to forward their bonds, and a list of names, to him with all convenient speed. The great extent which the manufacture had now reached, threatened an evil which had to be warded off by legislative enactments—I mean the annihilation of timber in the weald. Up to a certain period the destruction of trees and underwood had been beneficial in clearing the land for agricultural purposes; but so early as the reign of Henry VIII. (1543), it became necessary to enact—that no wood shall be converted into pasture—that in cutting coppice woods at twenty-four years' growth, or under, there shall be left standing and unfelled, for every acre, twelve *standils* or *stovers* of oak, or in default of so many, then of elm, ash, asp, or beech—and that if the coppice be under fourteen years'

growth, it shall be inclosed from cattle for six years; provided always, &c., that this act do not extend or be prejudicial to any of the lords or owners of the woods, underwoods, or woodlands growing or being within any of the towns, parishes, or places commonly called or known to be within the *Wilds* of the counties of Kent, Surrey and Sussex, other than to the common woods growing and being within any of the said *Wilds*, &c. A series of enactments of similar character succeeded. The Act 1 Elizabeth, cap. 15, provides that no person shall convert into coal or other fuel for the making of iron, 'any timber trees of oak, beech, or ash of the breadth of one foot square at the stub,' within fourteen miles of the sea, or the River Thames, Severn, &c., or any other navigable river. The county of Sussex, the weald of Kent, and the parishes of Charlewood, Newdigate, and Leigh, in the weald of Surrey, were, however, excepted from the operation of this Act. The Act 23 Elizabeth, cap. 5 (1581), declares that 'by reason of the late erection of sundry iron-mills in divers places, near London, and 'not far distant from the Downs and sea-coasts of Sussex,' decay of timber hath ensued; and forbids, therefore, the converting to coal or other fuel, for the making of iron-metal in any iron-mill, furnace or hammer; any wood within twenty-two miles of London, or within four miles of the foot of the hills called the Downs, betwixt Arundel and Pemsey, or within four miles of the towns of Winchelsey and Rye, or within two miles of the town of Pemsey, or within three miles of the town of Hastings, under a penalty of 40*l.* for every load of wood so employed. 'Provided always, that this Act shall not extend to any woods growing, or to grow, in the wealds of Surrey, Sussex, and Kent,' if eighteen miles from London, and eight from the Thames. It also forbids the erection of any new iron-works within twenty-two miles of London, or four miles of the Downs, or of the towns of Pemsey, Winchelsey, Hastings, and Rye, upon pain of 10*l.* The woods of Christopher Darrell, gentleman, at Newdigate, in Surrey, are exempted from the force of this enactment, on the ground of their having been preserved and coppiced for the especial use of his iron-works in those parts. The Act 27 Elizabeth, cap. 19 (1585), rehearses 'Whereas by the over great negligence or number of iron-works which have been, and yet are, in the wealds of Sussex, Surrey, and Kent, it is thought that the great plenty of timber which hath grown in those parts hath been greatly decayed and spoiled, and will in short time be utterly consumed and wasted, if some convenient remedy be not timely provided,' and therefore forbids the erection of any manner of iron-mills, furnace, *finary*, or *blowery*, for the making or working of any manner of iron or iron-metal, except upon ancient sites. 'What a picture of flashing mills, and roaring furnaces, and that most Tartarian of all noises, iron hammers beating on iron—filling, as Camden says, the neighbourhood round about "night and day with continued noise!"—So Drayton:—

These forests, as I say, the daughters of the Weald,
(That in their heavy breasts had long their griefs concealed)
Foreseeing their decay each hour so fast came on,
Under the axe's stroke fetched many a grievous groan,
When as the anvil's weight and hammer's dreadful sound,
Even rent the hollow woods and shook the queenchy ground;
So that the trembling nymphs oppress'd through ghastly fear,
Ran madding to the Downs with loose dishevell'd hair.
The Sylvans that about the neighbouring woods did dwell
Both in the tuffty fifth and in the mossy fell,
Forsook their gloomy bowers, and wander'd far abroad,
Expell'd their quiet seats, and place of their abode,
When labouring carts they saw to hold their daily trade,
Where they in summer want to sport them in the shade,
Could we, say they, suppose that any would us cherish,
Or suffer (every day) the holiest things to perish?
Which our daily want to minister supply?
These Iron Times breed none, that mind posterity.

Who that knows anything of the delicious quiet of that beautiful Weald—who that has

On its soft downy banks damask'd with flowers,
Or under the shadow of its 'melancholy boughs'
Of leaves and fuming rills—

can believe in this mad Pandemonium of the past?

Of course, and in spite of these legislative follies, the trade and "the waste," if it deserves to be so called, went on, regulating itself by natural laws, until, in the seventeenth century, there were 140 hammers and furnaces in Sussex. "The greatest existing remains of Sussex iron are the balustrades which surround St. Paul's cathedral. They were cast at Lambhurst furnace, and their weight, including the seven gates, is above 200 tons. Their cost, according to the account-books kept at the furnace, was 11,202*l.* 0*s.* 6*d.*"

We are indebted to the iron manufacturers for those fine shoots of water which still add beauty to the Weald. "A great deal of meadow ground," says Camden, "is turned into ponds and pools for the driving of the mills;" and many of them still remain—though the "hammers" are often occupied by corn-mills. Some have been drained, and are now used as hop-gardens and oster-beds.

On the decline and fall of the trade, Mr. Lower observes:—"The amazing consumption of wood rendered the production of iron in this district more expensive than in those localities where the coal mines and the ferruginous strata are in close proximity to each other. Upon Sir Roderick Murchison's authority, our wealds still contain a much greater quantity of iron-ore, and that of richer quality, than many of the coal fields of England; but for the reason alluded to, competition with those districts was hopeless. In spite, however, of the invention of 'charking' sea-coal, alluded to as a desideratum by Fuller, Sussex still maintained its position as a seat of the iron-trade long after the establishment of that process. Even in the days of our grandfathers, cannon continued to be cast in some places, and the great hammer's 'occupation' was not wholly 'gone.' By degrees, however, the glare of the furnace faded, the din of the hammer was hushed, the last blast was blown, and the wood-nymphs, after a long exile, returned in peace to their beloved retreats! Farnhurst, in Western, and Ashburnham, in Eastern Sussex, witnessed the total extinction of the manufacture."

Sussex is just now the high aristocratic anti-manufacturing district; and to hear its orators at their local triumphs one would suppose that they were all autochthones—earthborn—and that no Sussex man had ever defiled his fingers with anything less dirty than mere dirt. Yet the greater part of the noble and the gentle—we mean, of course, such as had great-grandfathers—are all more or less indebted to the iron-trade—grew into wealth and importance in that iron age. Neville and Ashburnham are amongst the earliest and the latest names associated with it. The Burrells (Willoughby de Eresby) had large works at Cuckfield. The Morleys of Glynde—the regicide, at least—had works at Hawkesden; the Fullers, of Rose Hill, at Brighton, and Heathfield, and Waldron. It is, indeed, a tradition of the county that the founder of the Sussex family gained his wealth by hawking nails about it upon the backs of donkeys—a tradition, the truth of which Mr. Lower denies, but does not disprove. With a notice of the fates and fortunes, the rise and fall of some other families, we shall conclude:—

"At Riverhall, in Faircrouch quarter, there were a furnace and a forge worked by the Fowles, a family of considerable note, whose prosperity rose and fell with the iron manufacture. Nicholas Fowle, who carried on these works, built, in 1391, the fine mansion of Riverhall, which still exhibits traces of its former grandeur. His son, William Fowle, had a grant of free warren from King James, over his numerous manors and lands in Wadhurst, Frant, Rotherfield, and Mayfield. The fourth in descent, and heir male of this personage, left Riverhall, and kept the turnpike-gate in Wadhurst. His grandson, Nicholas Fowle, a day-labourer, emigrated to America, in 1839, with his son, John Fowle, a wheelwright, and a numerous young family, carrying with them as a family relic the royal grant of free-warren, given to their ancestor. Brookland Forge, and Ferredge Forge, on the borders of Frant, at or near Bartley Mill, or Little Shoemiths, were worked by the Barhams of Butts and Shoemiths. John Barham, of Butts, in Wadhurst, second son of a younger son of Henry Barham, Esq., lord of Barham, &c., county Kent, a descendant (according to the Kentish historian and genealogist, Philipot) from Robert de Barham, son of Richard Fitz-Urse, and brother of the murderer of Thomas à Becket, was the founder of several branches of the Barhams inhabiting the mansions of Great Butts and Shoemiths; the former of which has disappeared, and been replaced by a miserable little house. His descendant, John Barham, resided there till about 1713, when he sold the remnants of his paternal inheritance. He died in obscurity, in 1732, aged 75. John Barham, grandson of the above-named John Barham, of Great Butts, erected, or rebuilt, about 1630, the beautifully situated and spacious mansion of Shoemiths, and worked Bartley Mill and Brookland Forges. His grandson was high-sheriff of the county 14 William III., but, at his decease, his family fell into obscurity. Scragoak works were formerly carried on by the Mansers, and afterwards by the Barhams; and Snape Furnace, the property of the Barhams, was worked by the Culpeper family about the middle of the 17th century. David Barham built the greater portion of the present house at Snape, about 1617. He died in 1643, and is interred

in the south aisle of Wadhurst Church, beneath an iron slab of very curious workmanship. This estate afterwards passed to the Barhams of Scragoak, who worked the furnace there, and this line of the Barhams terminated with Nicholas Barham, who died in the workhouse, in 1778, aged 82. The representative of these once distinguished families, now resident in Wadhurst, is Nicholas Barham, a wheelwright."

How forcibly do such records as the above bring before us the moral of mutation—with its legend, "Passing away!"

The Metallurgical Treatment of Ores.

By JOHN MITCHELL, Esq., F.C.S., author of *A Manual of Practical Assaying, &c. &c.* No. XXXV.—[Continued from November 10.]

Extraction of Iron in the Ordinary Iron-Furnace.—The blast-furnace interiorly is formed of two cones, joined at the base. The upper cone, or the body, or internal cavity of the furnace, is formed by a lining of firebricks of the most refractory kind—outside of which is a layer of broken cinder, or slag, and then again a second lining; after which comes the outer wall, either of brick or stone. Above this is a kind of chimney, pierced with lateral holes, by which the charging of the furnace is effected. The lower cone, termed the boshes, is generally formed of very difficultly fusible quartzose stones—in the choice of which great care and skill must be exercised, as the duration of the furnace at this part is of the highest moment. Sometimes, however, the boshes are formed of very refractory bricks. Below the boshes is a prismatic space, termed the hearth; three sides descend to the bottom of this space, or crucible; the fourth side, however, descends but within some few inches of the bottom. This side is termed the tym, and the upper stone of which is termed the tym-stone; and a plate of metal, the tym-plate, is wedged firmly to it, in order to prevent fracture by the great heat; below this is the dam-stone, also protected on the outer face by a strong iron-plate, called the dam-plate; this stone occupies the whole bottom of the hearth, with the exception of about 6 in., which, every cast, is filled with a refractory binding sand. The bottom of the hearth, or crucible, is formed of a quartzose stone, millstone grit; below which are openings, to allow a free circulation of air under the furnace, so that no water may accumulate, and be the cause of, perhaps, very serious accidents. The whole building is erected on vaulted galleries. Above the hearth, and about at the level of the tym-plate, are pierced generally three holes for the admission of the tuyères. The tuyères are generally conical tubes, with a double envelope of iron or copper; and as they might fuse at the extremity, owing to the high temperature to which they are exposed, a current of cold water is made to circulate through the envelope. To give any detailed account of the blast-furnace, or any of the other furnaces employed in the production of iron, would here occupy too much space—the intention merely being to give a general outline of such points as may be considered necessary, and of the operation of reduction altogether. It rarely happens that mine can be fused in the blast-furnace without the addition of some foreign substance. It has already been mentioned that the gangue is generally clay or quartzose matter—both very infusible substances; and it is absolutely necessary that both gangue and metal be rendered perfectly fluid, so that they may separate in the hearth, when in the course of working they arrive there. It is also necessary to extract the largest possible quantity of iron; and, if the gangue of the mine be quartzose, this can only be effected by the formation of a silicate, fusible at the temperature of the blast-furnace. If no foreign base be added, the quartz combines with a portion of oxide of iron, which is then prevented from being reduced, and forms a fusible slag, as in the Catalan method; but then, as already shown, a considerable quantity of iron passes into the slag and is lost. In the other case, supposing the gangue to be clay, an analogous circumstance presents itself. The silicate of alumina is nearly infusible in the furnace, and could only become liquid by combining with a certain portion of oxide of iron, forming a tolerably fusible double silicate of oxide of iron and alumina; but if a suitable quantity of carbonate of lime be added, it becomes caustic in the body of the furnace; and the lime so liberated combines with the silicate of alumina, to form a fusible double silicate of alumina and lime; and this silicate contains so much base that it does not take up oxide of iron; so that the latter is in a perfectly free state for reduction. When the ore contains only quartz, it is necessary to add both clay and carbonate of lime, generally added as marl; but as lime, with an argillaceous matrix is more common than with a quartzose, the latter are always mixed with the former, when practicable; so that limestone is the only flux added. In some cases the gangue is calcareous, then silicate of alumina must be added, in the shape of clay, or argillaceous ores must be worked with the calcareous. The fusibility of the double silicates of alumina and lime varies with the proportions of the constituents. Experiment has shown that the most fusible double silicate of alumina and lime exists when the oxygen in the silicic acid is double that contained in the two bases together. The fuel generally employed in blast-furnaces is either coke or charcoal. The latter fuel leaves very little ash; this ash is also very easily fusible, and gives to the produced metal but little in the way of injurious constituents. In charcoal furnaces, the most fusible slag, containing the smallest amount of iron, is sought to be obtained. The composition of these slags corresponds very nearly to that above quoted. Coke, on the other hand, generally gives considerable quantities of ash; besides which, it contains pyritous matter—sometimes a large amount. These pyrites furnish sulphur to the metal produced, and alter its qualities in a very marked manner. The nature of this alteration has been shown in former papers. The most fusible slag cannot, however, be advantageously obtained in a blast-furnace fed with coke, because a slag having such a composition would allow the largest possible quantity of sulphur to enter into the composition of the metal. Experience, however, has shown that this inconvenience may be in part avoided by considerably increasing the proportion of limestone added, and seeking to obtain a silicate of such a composition, that the oxygen of the silicic acid may only equal that of the bases. The larger quantity of lime thus prevents much of the sulphur entering into the composition of the iron, by forming sulphuret of calcium, which remains in the slag; so that the slag of a coke furnace in good working order must necessarily be more infusible than that of a charcoal furnace in like condition; hence another reason why the temperature in a coke furnace is always higher, in order that the slag may require a sufficient fluidity.

I have now given as much space to the consideration of the materials and products of the blast-furnace as the limit of these papers will allow, with the exception of the atmospheric air so largely used. This I will briefly notice before passing on to the conclusion of the metallurgy of iron, merely adverting to the difference in the re-actions, or rather the amounts of re-action, in the use of hot and cold air. Cold air thrown into the blast-furnace, absorbs a very considerable proportion of the heat developed, just above the tuyère, in order to raise the admitted air to the temperature existing there. It can be, therefore, readily conceived, that if the air, before admission to the burning materials in the furnace, were heated to the temperature of 409 deg. or 600 deg., that a very much less amount of heat would be absorbed by it to raise it to the neighbouring temperature; and substances which are difficult of fusion in a furnace fed with cold air, may be rendered readily fusible, or, at all events, possessing a suitable fluidity in a like furnace, by the substitution of hot air. So a difficultly combustible fuel burns more readily, because the combustibility of carbon is in proportion to the temperature to which it is heated; so that by the employment of hot air more refractory substances may be fused, and denser fuels may be employed, which would burn but imperfectly by the cold-blast. When a furnace urged by hot-blast is fed with mine, &c., which works well in a cold-blast, the amount of fuel is very considerably diminished, and by careful management the work proceeds as well; but it is important to remark, that the substitution of hot for cold air considerably modifies the re-actions which take place in the different parts of the apparatus. The carbon is present in smaller quantity; it is, moreover, more readily combustible. The quantity of air introduced being in proportion to the carbon burned, the weight of gas which traverses the furnace during the passage of the hot air, is less in proportion to the weight of the ore and limestone than in the passage of cold air. Supposing the temperature of the hearth to be the same in both cases, there would be in the middle and upper part of the furnace less heat than in a furnace fed with cold air. The fuel being more combustible, the maximum space of temperature would be more restricted. These two causes determine important modifications in the nature of the chemical re-actions taking place in the various parts of the furnace, more especially before and just above the tuyères, and they also exercise a considerable influence on the quality of the metal; and it seems to be pretty certain that the management of a hot-blast is more difficult than that of a cold-blast furnace; it requires greater attention, and the yield appears to be more variable in quality.

Conversion of Cast into Malleable Iron.—To effect the transformation of cast into malleable iron, it is necessary to remove the combined carbon and silicon; other changes are sought to be effected, as will be shown hereafter; but the carbon and silicon by their absence seem to more particularly mark the conversion. The metal is submitted to an oxidising action, by which the carbon is converted into carbonic acid, and the silicon into silicic acid. The latter acid combines with the bases formed as oxide of iron (more particularly), lime, alumina, &c., forming fusible silicates, which separate as slag. The iron generally contains small quantities of sulphur and phosphorus, which also separate during the operation, or at least in part. It is essential to get rid of as large a quantity of these substances as possible, for they by their presence very materially deteriorate the quality of the bar metal produced, sometimes even rendering it unfit for use. It has already been pointed out in other papers in this series, that they induce the properties of hot and cold short in those samples in which they may happen to be found in any considerable amount. If malleable iron is to be manufactured, the blast-furnace is worked in such a manner that the metal produced is white iron. This is effected by charging with more mine than for grey metal, and by so arranging the blast, that the charge shall descend with such a rapidity that it shall not have time for conversion

into grey. The rapidity of the descent, however, must be managed in such a manner that the slag shall be as free as possible from oxide of iron, consistent with the nature of the metal wished to be produced. Very pure mine, however, must be employed in this operation, otherwise the result will be a most impure metal. The mine should be as free as possible from phosphoric and sulphuretted compounds. When cast-iron is kept at a high temperature, in contact with atmospheric air, a layer of oxide of iron is formed on its surface. This oxide reacts on the interior layers of the metal; the carbon of the cast-iron reduces the layer of oxide, and is disengaged as oxide of carbon, which, being liberated, is converted into carbonic acid by the excess of air around the metal. The silicon effects a similar reduction, producing silicic acid, which combines with the undecomposed oxide of iron, forming a fusible silicate of iron. The composition of this silicate is variable, according to the rapidity of the formation of oxide of iron; but generally it has a composition expressed by the following formula: $3\text{FeO}, \text{SiO}_2$ —that is, a compound of one equivalent of silicic acid with three equivalents of protoxide of iron. Sometimes, however, a more basic oxide is formed—as $6\text{FeO}, \text{SiO}_2$. This, however, only happens if the oxide is conveyed out of the reach of any metallic cast-iron; for, when in contact with that substance, the carbon tends to decompose a portion of the excess of oxide forming the first-named silicate; so also, at a higher temperature, are less basic silicates liable to be formed; but as sometimes there is an excess of carbonaceous matter in the metal, and at other times an excess of oxide of iron, the general formula of the slag is as at first stated. Regarding the large quantity of silica present in the slag, it is not all produced by the oxidation of the silicon of the cast-iron; a portion of it is furnished by the sand adhering to the pigs of metal, and another from the ash of the fuel mechanically carried over. The above is a short sketch of the theory of the conversion of cast into malleable metal. There are two processes in use—in the one the iron is re-fused by means of charcoal; in the other, by coal.

[To be continued in next week's Mining Journal.]

THE BANWEN IRON COMPANY.

An action has been tried in the Court of Common Pleas, which had been brought by the Banwen Iron Company, incorporated under the 7th and 8th of Victoria, c. 110, against the defendant, a shareholder of the company, for calls amounting to 2400*l.*, due on his shares in the company. The defendant pleaded several pleas, and, amongst others, that the company was registered under the 7th and 8th of Victoria, c. 110, and that although a certificate of complete registration, which by the statute incorporated the company, had been granted, yet that the deed of the company did not fulfil the requirements of the statute, in properly setting out what the nature and business of the company required, or the maximum number of directors, the number of shareholders, or the amount of their interest, without stating which the certificate of incorporation had been improperly granted by the registrar under the statute; that the company was not duly incorporated, and that the plaintiffs could not sue the defendants. To this plea there was a special demurrer.

Mr. NEEDHAM, on Wednesday, appeared in support of the demurrer. He contended that the plea was no answer to the action, because the certificate of complete registration given by the registrar under the 25th section of the 7th and 8th of Victoria, c. 110, was a judicial, and not a ministerial act, and that that officer, having exercised his judgment on the deed when laid before him, had adjudged it to be sufficient; and thereupon had granted his certificate of complete registration, by which act the company was incorporated by the statute from the date of the certificate.

Mr. PEACOCK, in support of the plea, contended that the registrar under the statute was a ministerial officer, otherwise it would depend on the judgment of this officer whether or not any commercial company whatever should be incorporated; and, however erroneous his decision, and whether there were any means of punishing him for improper conduct in his office or not, the fact was the company had been improperly incorporated. The House of Commons had decided that Mr. F. O'Connor's National Land Company was an illegal project, and thereupon the registrar under this statute had refused to grant to that company a certificate of complete registration. If he were a judicial officer, as contended on the other side, that decision of his would be conclusive, but the Court of Queen's Bench had granted a *mandamus* to compel him to show cause why he refused to grant a certificate of complete registration, which, on the requirements of the statute being complied with in the deed of the company, he was bound to grant. If his judgment were conclusive, and he improperly granted such a certificate, did a writ of *certiorari* lie to repeal or quash the certificate, the granting of which incorporated the company? If the Queen were deceived in her grant, such a writ would issue to repeal it. It was giving to this officer greater power than was possessed by the Queen, to hold him to be a judicial officer in this case, and the appointment was not one calculated for such an enormous responsibility.

Mr. NEEDHAM having replied on Saturday, Mr. Justice MAULE, in giving judgment, after stating the issue in law raised by the pleadings, said it was contended by the counsel for the defendant that it was a condition precedent to the powers which the registrar had to grant a certificate which incorporated a company, that the deed should sufficiently and properly set forth what the nature of the company required, which condition had not been performed, and that, therefore, the certificate was void. The question was certainly a very important one, but, on the best consideration he could give to it, he was of opinion that the matter set forth in the plea was no answer to the action, and that the facts stated did not prevent the company acting as a corporation. The question turned mainly on the 7th section of the statute, which provided that it should not be lawful for any company to act otherwise than provisionally until the company was formed by a deed, in which deed a number of things, as to the requirements of the company, the number of shares, the amount of capital, &c., were to be inserted, after which a certificate of complete registration might be granted by the registrar, and without which it should not be lawful for him to grant such certificate. If there should be any defect in the deed, the 8th section of the Act provided that it might be remedied by a supplementary deed. Taking these two sections together, there seemed to be no doubt that the registrar was to make some inquiry, and to consider some conditions on a deed being presented to him to register, and if he found a defect in it, it might be remedied by supplementary deed under the 8th section. But it seemed to him that the registrar was not to look further than the face of the deed to inquire whether its provisions were consistent with or repugnant to the Act of 7 and 8 Victoria, or any subsequent Act. Probably the plea might be open to the objection that the deed ought to have been set out in it, that it might appear to the Court that the registrar had arrived at a wrong conclusion in law in granting the certificate. That was not, however, the question before them. The registrar had determined that the deed was sufficient, and had granted the certificate of complete registration which incorporated the company. If he were mistaken in that, the question was, what would be the effect of such a mistake? Would it avoid the right of the company to sue for these calls as a corporation? The 25th section was conclusive as to that, as it enacted that the granting by the registrar of a certificate of complete registration incorporated the company from the date of such certificate. It seemed to him that to hold the certificate not to have this effect would be pregnant with great inconvenience, and that a company would be a corporation for some time, then no corporation, and then a corporation again, as defects in the deed were found out and remedied by a supplementary deed. He thought it more in the spirit of the Act to hold that, until dissolved by some competent court, the company was incorporated, although the registrar might have been mistaken. A contrary construction would lead to much difficulty. He did not think the Court was called upon to say what should be the course to pursue by shareholders or others if the registrar were to grant a certificate of complete registration on an erroneous conclusion. It was sufficient for the Court to decide the question before them, and he conceived that the plaintiffs were entitled, notwithstanding the plea, the facts stated in which must be taken to be confessed, to recover on the shares.

Mr. Justice WILLIAMS was of the same opinion. The statute under consideration appeared to be defectively drawn, and did not provide what was to be the effect of a certificate on a defective deed if improperly granted by the registrar. There were difficulties on either side, and he thought it best to hold that the certificate was not null and void; a contrary decision might lead to results which might make it impracticable to work this statute. He thought that this was a case in which the legal maxim applied, *factum valet quod fieri non debuit*. There must, therefore, be judgment for the plaintiffs. Judgment for the plaintiffs accordingly.

LIVERPOOL MARINE INSURANCE COMPANY.—At a meeting of shareholders in this concern, their affairs appeared to be in so unsatisfactory a position, that the dissolution of the company appeared inevitable. The paid-up capital was swamped, and also an additional amount of about 25,000*l.*; but those who have any risks underwritten in the office need not, it is said, feel under the least apprehension on that account, as the shareholders are a wealthy body.

The Compendium of British Mining.

BY J. Y. WATSON, ESQ., F.G.S.

WHEAL TRELAUWY SILVER-LEAD MINE.—(For general statistics see *Mining Journal* of Jan. 6, 1849.) In 260 shares, price 85*l.* per share; paying dividends (quarterly) at the rate of 16*l.* to 20*l.* per annum, or 17½ per cent. The dividends already paid this year amount to 14*l.* per share. The returns are silver-lead, yielding about 17*l.* per ton, and of which 108 tons are returned monthly. In consequence of the extensive machinery, the monthly cost of working is high in proportion to the returns; but the shares are, nevertheless, a good and safe mining investment.

WHEAL TREHANE SILVER-LEAD MINE.—(For general statistics see *Mining Journal* of Jan. 20.) In 256 shares, price 28*l.* to 30*l.* per share; pays dividends bi-monthly in Cornwall at the rate of 5*l.* to 12*l.* per share per annum, or rather more than 30 per cent.; the dividends already paid this year amount to 9*l.* per share; and there will be another of 1*l.* 10*s.* per share, payable in December next. The enormous amount of interest paid by this mine, in comparison with the price of shares, might, without explanation, lead many to suppose it could not be lasting. I would, therefore, remark, the sett is not a large one; but is working of a very trifling cost, as compared with many mines, having no machinery, but paying Trelawny a monthly sum for the use of engine, water, &c.; whilst the ores raised are very rich for silver, and realise a price far above the average of the county—viz.: upwards of 20*l.* per ton. The paid-up capital of this mine was originally 1*l.* per share; whilst the dividends since 1847 have been 19*l.* 15*s.* per share, with every prospect of continuing for years at from 6*l.* to 9*l.* per share per annum.

NORTH POOL COPPER MINE.—(For general statistics see *Mining Journal* of March 10.) In 100 shares, price 52*l.* each; paying dividends, bi-monthly, at the rate of 140*l.* per share per annum, or 25 per cent. The dividends paid this year amount to 117*l.* 10*s.*, and another becomes due in December next. North Pool is in a rich copper district, and is a young mine, with large quantities of ore discovered; the shares have, in consequence of discoveries, rose in value from 50*l.* to 500*l.* in one year.

WEST BULLER COPPER MINE.—(For general statistics see *Mining Journal*, May 5.) In 128 shares, price 300*l.*; pays dividends quarterly at the rate of 40*l.* per share per annum, or nearly 15 per cent.; amount paid this year, 20*l.* Little more than 12 months since, this mine commenced working, and only 10*l.* per share were ever required of the shareholders. The discoveries have been very rich; and the present rate of dividends cannot be taken as any criterion of what may be paid when the mine becomes more developed.

[To be continued in next week's Mining Journal.]

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—The lode in Field's engine-shaft, sinking under the 60 fm. level, is from 7 to 8 ft. wide; and the course of copper ore in the east end of the shaft is from 5 to 6 ft. wide, and the west end 3 ft. The lode in the 60 fm. level, east of said shaft, is about 6 ft. wide, 5 ft. of which is good for copper ore; every foot we sink in the shaft and drive in the lode is improving the appearance of the mine very considerably. There is no change in any other part of these mines.

BARRISTOWN.—The stopes in bottom of adit level, west of the slide, are producing about 10 cwt. per fm. The lode in the 24 fm. level, west of the engine-shaft, is 2 ft. wide, but not improved for lead, at present only a thin mixture through it. The lode cut in the western cross-cut, in the 18 fm. level, is about 18 in. wide, with a good branch of lead 4 inches on the north wall, and a mixture of lead through the other part of the lode; we are driving an end on the course of it, which is at present 40° to the west of south, being different from anything we have previously seen here, and a westerly underlay; we are also working a pitch on it, which looks pretty well for lead. In clearing up the bottom under the 18 fm. level, which is 9 fms. deep, we find a branch of lead, from 2 to 3 in. wide, standing perpendicular, which will pay to work on tribute.

BEDFORD UNITED.—The lode in the 103 fathom level, east of Burley's winze, is 3 ft. wide, and producing 2 tons of good ore per fm. In the 103 fm. level west there has been no lode taken down. We have not yet commenced the winze to the rise in the 90 fm. level, although all possible exertions have been used to effect it. There has been no lode taken down in the 70 fathom level east. The ground in the engine-shaft, and the cross-cut in the 47 fm. level, remain without alteration.

BLISLAND CONSOLS.—We are pushing on our adit with all force; the ground is rather hard; we cut a branch of clean water adit, which I hope will alter the ground for the better; the lode we cut last week looks most promising, underlays about 4 ft. in a fm., and contains stones of tin, copper, and felspar. As soon as our machinery is up, I shall begin to put men to stop the lode for the stamps; the carpenters are making a good strong job of the wheel, and are getting on well.

BRYN-ARIAN.—The lode in the 10 fm. level, driving west from the engine-shaft, is still disordered; but within the last few days appears to be getting more settled and yielding more ore. We have communicated the rise in the back of this level, east of the shaft, with the winze sunk under the deep adit level, and begun cutting down the part of the lode left standing in sinkings; when this is accomplished, we shall communicate the rise in the level east, and stop the piece of ground now cut out by this communication, which is about 3 fms. long and 10 in. wide, and from present appearances, both end and stop will yield at least 15 cwt. of ore per fm. The lode in the back of the deep adit level, east from the shaft, is now producing 1 ton per fm.; the stopes in the back of this level, west from the shaft, is yielding 8 cwt. of ore per fm. The lode in the deep adit level, driving east from the shaft, is 5 ft. wide, composed of spar, killas, jack, and several small stringers of lead ore; the present end is now within 12 fms. of a junction of lodes, where there appears to be a fine gossan, mixed with copper and lead ore, from which several tons of ore have been taken and sold; this level is about 38 fms. from surface. We are now down about 10 fms. on the great south lode, and find the workings very large and the water quick; but I hope to be able to see the bottoms of these workings within a month from this time.

CAMBORNE CONSOLS.—Francis Daniel, Esq., reports by letter, dated Nov. 14—it is gratifying to be able to continue to confirm to-day the intelligence which my letters have recently conveyed to you of the flattering prospects of these mines. Our silver lode in the 20 fm. level has undergone no failure in the past week, and judging from its appearance in the end this afternoon, where it is producing rich silver ore, and is equal, I believe, to anything we have had, it can scarcely be doubted that we shall realise large profits, particularly if the inexpensive mode by which it may be wrought be taken into account. I have been daily expecting that the silver lode in the 40 fm. level, on the eastern side of the cross-course, but as it has been long a little towards the north, we shall have about 6 feet further to drive before we get it on the western side. In the 20 fm. level we had to drive about 15 fms. west before we came upon the silver ore, and as the lode is disordered by the cross-course for about that distance, I presume we may have a similar distance in the 40 fm. level before we shall get into productive ground. This will take about a couple of months; but you must not understand that the ground between the 20 and the 40 fm. levels will not be available to us until then. On the contrary, I expect to cut the lode in the 20 fm. level, west of the cross-course, on the course of the lode in the 40, the ground between the two levels will be so effectually drained, that we shall find no difficulty in sinking below the 20 fm. level, and thus very materially increase our raising of silver ore. Silver ore being a material which could not be so loosely handled and dressed as tin and copper, it has taken us some time to prepare for the operation; we have, however, commenced the dressing this afternoon, for which purpose I have provided competent hands acquainted with the work. In the meantime, I have utilised every opportunity of testing, and otherwise ascertaining the value of the several varieties under which such ore as we are now working; their produce has varied from 50*l.* to 320*l.* per ton. I have been surprised to find, by several experiments, that the manics of the lode are worth for silver from 10*l.* to 20*l.* per ton. This is in itself a most striking fact, as we shall, therefore, save all the metalliferous part of the lode, and the dressing process will be rendered less tedious and complicated. I am glad to have it in my power also to say that our adit, upon the Dolcoath caunter, is producing fine stones of copper ore, and giving out a large quantity of water, which, as we are daily expecting to cut the lode, we are now daily working, we deem a most favourable indication, and are rather anxiously looking to the result. We have just holed and nearly completed Treadwell's shaft to the adit level, which will afford us thorough ventilation, and great facilities for working these lodes, as well as Martin's, and two other lodes to the south of the shaft; whilst the 20 and 40 fm. levels, upon the silver lode, will, in a comparatively short space of time, enable us to unwater and work the several lodes at those depths below the adit. Upon the whole, we cannot well be in a better position for turning to account the great resources of this valuable place of mining ground, and I shall not fail of daily apprising you of anything interesting which may turn up.

COURT GRANGE.—Captain Mathew Francis reports, by letter, dated Nov. 16th.—The large wheel and machinery went to work yesterday. Everything went smoothly and easily, and I think, nothing could be altered to make it better. I hope we shall have the water out of the mine by Monday, and, except in cases of severe frost, I cannot imagine that anything can occur to hinder our progress for many years to come. We have now a few days' work to do, to repair the crushing-mill wheel and crushing machinery, when everything in this mine will be in order. The ore-ground eastward, as seen in the end of the 30 fm. level, has improved to a good course of ore, and we have now good ore-ground in this level, both eastward and westward of the engine-shaft. The discovery in the 30 fm. level is of great importance, it being in maiden ground. We have also several tons of ore prepared for crushing, and, altogether, things are in a favourable position for bringing out the full value of the property. The Llettyhen engine-shaft is also sinking in a good course of ore; but our carpenters and smiths have not been too busy at Pen-y-cyfne Mine to be able to work at the Llettyhen crusher; but no time will be lost in fixing it, so as to get this mine into produce, as well as Pen-y-cyfne. The small rods are now at liberty at Pen-y-cyfne, which, up to this time, have been used for pumping the water there; and, after they have undergone thorough repair, they will be applied at East Pen-y-cyfne for sinking in that fine lode; and, from all appearances, I expect we shall soon get into some fine ore-ground in that part of the mine. Our attention will now be directed to reducing the surface cost to such an extent as will be compatible with the well-doing of the mines; but I really do not see that we can do without a small office. The new smithy is a very nice building to look at, and very convenient for the purposes for which it is required.

CWM ERFIN.—Capt. Nicholls and myself have been through the underground work in this mine to-day. The stopes along the back of the 20 fm. level, east of the engine-shaft, are in a compact well-mineralised lode, yielding, on an average, 1 ton of ore to a fathom of ground; the 20 end has now arrived, in driving eastward, to a por-

tion of the lode that, from the dip of the ore in this upper level, may be expected to bear ore; it is, however, now unproductive; 12 fms. further eastward, where a level has reached its course driving westward, from a winze sunk below the 10 fm. level, it is still unproductive; the 30 through the ore ground, there is a course of ore yielding about 1 ton to a fm. It is, therefore, evident that, in a very short distance, the 20 end may reach this ore ground, which has been worked by means of the winze under the 10 and the 20 from it for a distance of 15 to 16 fms., yielding, on an average, 1 ton of ore to a fathom. This ore ground has been further seen by means of the workings from the eastern engine-shaft 15 fms. further eastward, and there is every probability of the 30 containing a good ore ground, at least, for the distance, altogether giving a length of bearing ground of about 180 fms., in which, as is natural to lodes, there are occasional patches of poor ground; but certainly the half, or 60 fms., of this ground will yield 1 ton of ore to a fm., which may be considered fairly profitable ground. The winze sinking under the 20, 30 fms. east of the engine-shaft, yields 1 ton of ore to the fathom; the general nature of the ore ground is without any change worth noting, and the dressing has produced this week about 6 tons of ore.

EAST BIRCH TOR.—We have this day raised some excellent reefs of tin from No. 5 lode; I think much better than any I have seen here before. The stopes on the south lode are also improved since my last report. We are getting on with the dressing of ore as fast as possible, and shall be ready for the smelting-house in the course of a week. The men are working with good spirit.

EAST CROWDALE.—The middle shaft will reach the 28 fm. level by the end of next week, and by the end of this month our pitwork will be fixed, and the winze commenced driving to the bottom, when we shall commence driving to the bottom of the shaft has improved for the last 4 fms. in sinking; at present producing excellent work—should this continue, which I have no reason to doubt, our drive will at once be laying open profitable ground. Our tribute ground in back of the 17 looks well; the tributors have 9*l.* 4*d.* out of 1*l.* for sending the work to surface, they paying all costs; and if the lode holds good the month out, the men will do well. We shall sample our tin for September and October this evening, and shall send it on to Plymouth for shipment on Wednesday next. I now leave for Glendard to sample the copper ore, computed 24 tons. The assays, both of tin and copper, shall be forwarded as soon as received.

ESGAIR LLEE.—The north lode in the deep adit, east of the cross-cut, is much the same as last reported, and will yield, on an average, full 10 cwt. of ore per fm. The south lode in the deep adit, east of the engine-shaft, is poor. There is no alteration in the lode in the winze below the shallow adit since my last report; we have flushed putting in air pipes, and we have now good air in the winze. The caunter lode in the shallow adit, west of Morgan's winze, is much the same as last reported; we are now driving east on this lode, to meet the one driving west of Morgan's winze. The lode is 4 ft. wide, and, I think, a richer gossan was never seen than we have in this mine, and producing stones of lead of the first quality, of near 4 cwt.; and, judging from its general appearance, I think, will, in depth, make a very productive lode. The dump shaft is not progressing as fast as I should wish, for the party who contracted to sink 9 fms. stent, certain at 11*l.* per fm., and, in case they sink it in three months, to receive a premium of 10*l.*, have proved to be the idlest and most drunken set I ever met with. We shall, I think, finish cutting the lobby to the wheel pit by the end of another week, after which we must turn an arch over it, in order to put back the stuff from the wheel pit.

HAWKMOOR.—We have completed fixing the plunger lift, which works very well. The lode in the engine-shaft, when last cut into (about 3 feet above the bottom) was 3½ feet wide, composed of fluor, spar, munda, and ore, worth 25*l.* per fm.; there is every reason to expect an equal amount of ore, if not an increase, on the next taking down of the lode. The lode in the 20 fm. level west is at present 3 ft. wide, and will yield 1 ton of ore per fm.; we have resumed driving the 30 fm. level north to cut the lode, which was thrown by a cross-course when suspended. We have this day cut the south wall of the lode, but have been unable to open sufficiently on it to give anything like an estimate of its size or value; suffice it to say, the lode is producing excellent ore. I hope to write more fully in my next.

HEIGSTON DOWN CONSOLS.—The 45 fm. level is much as last reported on. The 35 fm. level, east of cross-cut, is without important alteration, producing occasional stones of copper ore. The 20 fm. level, west of Hitchens's shaft, is also producing good stones of copper ore.

HERODSFOT.—Our usual monthly survey was held yesterday, and I beg to hand you the enclosed setting list, and the following report of the mine:—The shaftmen are engaged in sinking for tip-plate, and cutting ground for eastern, &c., which will occupy them for the present month. In the 117 fm. level we are driving north and south by the side of the lode; the stopes in the back of this level are each worth 12 cwt. of lead per fm. In the south end, in the 106 fm. level, the lode is 3 ft. wide, and worth 8 cwt. of lead per fm.; the first stopes in this level is worth 10 cwt. of lead per fm. in the north end; in the south end it is 2 ft. wide, and worth 10 cwt. of lead per fm.; the second 30 cwt. of lead per fm.; the first stopes in this level is worth 4 cwt., the second 2 cwt., the third 4 cwt., and the fourth 5 cwt. of lead per fm. In the 94 fm. level south we are driving by the side of the lode; the first stopes in this level is worth 10 cwt., the second 7 cwt., and the third 6 cwt. of lead per fm. In the north end the lode is at present disordered and unproductive. There are two stopes in the back of this level, each worth 10 cwt. of lead per fm. In the 82 fm. level the lode contains stones of ore in the north end; in the south end it is 2 ft. wide, and worth 10 cwt. of lead per fm.; the first stopes in this level is worth 18 cwt., the second 21 cwt., and the third 21 cwt. of lead per fm. There are two pitches set, one at 51, the other at 51, 10*s.* per ton. We purpose sampling on Wednesday next; the quantity will be about 90 tons.

HOLMBUSH.—The lode in the 120 fm. level south is 7 ft. wide, composed of soft white quartz and stones of lead—ground very soft. The ground in the 120 fm. level cross-cut south, driving to intersect the flap-jack lode, is still very favourable, which is gratifying as well as important, and should it continue, the lode will be cut sooner than we first anticipated. The lode in the 110 fm. level south is 4 ft. wide, composed of hard spar, broken, and stones of lead. The flap-jack lode, in the 100 fm. level, east of the great cross-course, is 4 ft. wide, and we are glad to say it still produces 6 tons of copper ore per fm., and we hope and trust it may continue to be so productive.

KIRKCUDBRIGHTSHIRE.—The 62 east is now in the unproductive black rock—we expect to be through it shortly. The lode in the 62 west is still 6 ft. wide, and worth 10 cwt. of lead to the fm. The water is not sufficiently drained yet to sink the shaft; but we hope to be able to sink in another week. The lode in the 50 west is 3 ft. wide, still yielding 1 ton to the fm.—a fine lode.

MENDIP HILLS.—The appearance of the slag-stuff, which we are at present removing to the dressing-floors, both at Blackmoor and Ubley, continues without any particular alteration; at the former place we find a fair quantity of slimes, but the slags, as stated in my last report, being taken from so near the surface, are not very rich in lead; however, I hope this will shortly be overcome, as our principal object at the present moment is to reach the bottom of the valley with as little delay as possible, where I have not the least doubt we shall find the slags to be of a more promising description. At Ubley, the slag-stuff is at present washing produces some tolerable good quality slags. Chatterhouse Valley continues to yield about the same quantity of both slags and slimes as it has for some considerable time past—viz.: about 5 tons per week of the former and 6 tons of the latter. We have a large heap of slags ready for the blast-furnace, I should say near 100 tons. I believe it is intended to commence smelting to-morrow morning; if so, the produce of lead shall be made known to you in due course.

SOUTH WALES MINES.—At Bodeall, we have cut the south, or the Frongoch, lode, in the shallow adit west; it is 5 ft. wide, and looking kindly. The lode in the deep adit, east of the Rhynid River, is very much improved since my last report, and will, at this time, yield, on an average, 2 tons of copper ore per fm. In fact, other parties judge the quantity to be 3 tons per fm.; but, at present, the lode produces very little lead. I think it quite necessary to commence driving a level above the deep adit, in order to sink a winze, to cut out ground for stoping, and for communication; for we do, at this time, need a little more air for driving the deep adit, and sinking the winze below it, which is now driven 2 fms. 3 ft., but, as yet, we have not taken down any of the lode; they are sinking on the back of it.

SOUTH WHEAL TRELAUWY.—The engine-shaft is in course of sinking by nine men—sunk below the 40 fm. level. In the 9 fm. level, also, ground more favourable than last mentioned; the strata of ground is a deep blue killas, water just as usual. Things are in a regular course of working order.

TAVY CONSOLS.—On the 31st October we sampled 30 tons 15 cwt. 2 qrs. dry ore, the produce of October month. In the cross-cut, in the 46 fm. level west, to cut the north part of the lode, we have strings of ore, and more water testing than for some time, and are expecting to cut the north part of the lode daily. The 46 south, on the cross-course, continues favourable for driving, and contains good stones of ore. In the 46 east of shaft the end is looking more favourable, producing good stones of ore, mixed with fluor spar. The 13 fm. level, on the cross-course, is still a level of ore, the stopes are all looking favourable, and we hope to sample about 40 tons of ore this month.

TRELEIGH CONSOLS.—The 125 cross-cut, at Garden's, is driving towards the lode. The 90, west of ditto, the men are still rising against the winze in the bottom of the 30. In the 80 fm. level, east of cross-cut, lode 24 ft. wide, worth 8*l.* per fm.; in the 60, west of ditto, lode 3 ft. wide, worth 24*l.* per fm. In the 80, west of Garden's, on the south part, lode 1 ft. wide, with stones of ore. The men cannot sink the winze below the 80 on account of the air; but they are driving the 90 west to meet the 80 east of the cross-cut. In the winze below the 70, lode 18 in. wide, with good stones of ore. In the 60, west of Garden's, lode 1 ft. wide, poor. At Wheal Parant, the 40 cross-cut, north of the engine-shaft, is driving towards Wheal Parant lode. The 40 cross-cut south is driving towards the middle lode. In the 30, east of engine-shaft, lode 2 ft. wide, worth 3*l.* per fm.; in the 20, west of ditto, lode 30 in. wide, with good stones of ore, and is looking more kindly. In the 20, west of ditto, lode 18 in. wide, with good stones of ore, and is looking kindly.

WEST WHEAL JEWELL.—The 83 fm. level, west of Williams's cross-course, on Wheal Jewell lode, not taken down in the past week. The 70 fm. level west, on the same lode, when last taken down worth 6*l.* per fm. The 47 fm. level, east on ditto, lode when last taken down worth 4*l.* per fm. The deep adit, west of ditto cross-course, on the same lode, not taken down in the past week. The deep adit, west of Tregoning's shaft, on Tolcarne tin lode, not taken down in the past week. The 12 fm. level, west of ditto shaft, on the same lode, not taken down in the past week. The stop west of Tregoning's shaft, in back of the 12 fm. level, on the same lode, worth 12*l.* per fm.; the stopes east of this winze, worth 9*l.* per fm. The stopes in bottom of 12 fm. level, east of Tregoning's shaft, on same lode, worth 26*l.* per fm. The stopes west of Tregoning's winze, in bottom of the same level, worth 20*l.* per fm. These stopes are working on tribute.

WHEAL MAY.—We have completed the open cutting, and commenced driving the adit level towards the new lode, which has been set at 15*l.* per fm. There are only 5 fms. to drive to cut the lode, which will be completed in about a fortnight, when a quantity of silver and copper ore will be raised. One of the directors has had an assay made of ores he broke from the lode, producing 141 ozs. of silver to the ton of ore, and 26 per cent. for copper.

WHEAL VINCENT.—The lode at No. 3 shaft still continues good, equal to last report. I am happy to find that two of the adventurers are on their way down to visit the mine, when they will be able to see for themselves. The south shaftmen have been engaged putting in a windoff, bobs, &c. The stopes are just as last reported; no lode taken down this week in the new stopes. The ground in the cross-cut, driving to cut the north lode from the eastern engine-shaft, is just as last reported on.

FOREIGN MINES.

LINARES MINES.—Nov. 2.—It gives me pleasure to report to the directors that since my last, of the 29th ult., we have proceeded much better than at any previous time with working, the rate of sinking being increased to 14 or 16 inches in 12 hours, which rate we hope next week to be down on the back of the first level. In clearing up the Calavera winze, we are finding in the rubbish some very fine stones of lead, superior to any we could have broken in the arches in the back of the levels (1st and intermediate), showing them to have been broken from a very fine and rich vein.

ALTON MINES.—Estimated produce for September:—

Mines.	Tons of Ore.	Per Cent.	Fine Copper.
Raisap.	60	8	4.80
Old Mine.	50	24	4.40
United Mines.	18	6	1.04
Michell's.	30	74	2.23
Mancur's.	1	2	0.03
Ryper's.	1	8	0.12
Carl Johan's.	8	6	0.64
New Lodes.	54	6	0.33
Total.	2044		13.57

Mining Report from the 26th September to the 15th October.

Raisap.—The 30 ft. stopes still yields good and profitable returns, the lode runs rather more horizontally, but the prospects continue equally good. The 20 ft. cross-cut has not further improved, neither has it deteriorated—some good ores have been produced from this working. The recent snow fall and frost have put a stop to the surface work, but the tributers are now employed in various parts of the old workings, from which we fully anticipate equally satisfactory results. The whole of the September produce is now brought to Bessikop, and in a few days, it will be delivered to the smelting-house. The carriage of ore from the mine is suspended for a short time, on account of the ice forming on the Alton River.

Old Mine.—The general appearance of the several workings is still encouraging, and some of them have further improved. The exploration of the main lode north-easterly makes fair progress, but continues very poor; the ground is favourable for driving, and we expect an improvement will shortly take place. The new lode above is still yielding good returns, with flattering indications of permanency; and, on the whole, we may look upon the progress recently made as highly satisfactory.

United Mines.—We have commenced sinking under the 10 ft. level on Ward's lode, where we hope to be more successful than heretofore, although the prospects as yet are not altogether very encouraging. At Woodfall's, we have recommenced operations in the mine, and the tributers make some fair returns of ore, of an improved per centage, from the back of the north lode, where the prospects are favourable.

Ryper's.—This mine has undergone no change; the tributers have hitherto returned but small quantity of good ore of the usual quality, and but little can be done here during the winter.

Mancur's has latterly been poor, and having had more profitable employment for the workmen, the operations have been reduced to a very limited scale, with a corresponding reduction in the returns.

Michell's workings continue favourable, but the winter setting in offers many impediments to the surface operations, in consequence of which I fear we shall shortly be obliged to resume less productive places in the mine, which for a time will probably occasion some deterioration in the returns. The whole of the mineral ore is not yet returned, which prevents from handing you the usual delivery note by post; but judging from the returns already made, I have no doubt, when completed, that they will amount to upwards of 30 tons of copper for the two months, including back stocks at Raisap; by the end of this week the whole of the ore will be delivered to the smelting-house, when the result of the assays will be forwarded.

MEETINGS DURING THE ENSUING WEEK.

MONDAY.—Gadair Mining Company—offices, half-past four.
WEDNESDAY.—Rhymney Iron Company—offices, One.
THURSDAY.—Eliotian and General Life Assurance and Endowment Society—offices, Two.
FRIDAY.—Agricultural Cattle Insurance Company—offices, Twelve.

IMPERIAL BRAZILIAN MINING ASSOCIATION.

The half-yearly general meeting of proprietors was held at the London Tavern, Bishopsgate-street, on Tuesday last, the 13th instant.

JOSHUA WALKER, Esq., in the chair.

GEORGE THOMAS, Esq. (the acting director), having read the notice convening the meeting, and the minutes of the last meeting, which were confirmed, read the following:—

DIRECTORS' REPORT.

Since the last half-yearly meeting, the occurrences at the mines have not been important, and the extracts from the correspondence, regularly exhibited at the office, have afforded the information received from time to time. It is with much satisfaction that the directors now report that the half-year ending the 30th June last, as well as the one preceding, shows a balance of profit. Whether a like result will attend the present half-year cannot be yet anticipated. A bunch of gold, of about 60 lbs. weight, was unexpectedly met with at Bananal in June, and similar, or better, good fortune may attend the operations of the present half-year. Mr. Henwood ceased to be chief commissioner on the 18th August, and arrived safely in England in the *Penguin* packet on the 23d of last month. Capt. Hitchens reached Bananal on the 14th August, and but one dispatch has yet been received from him, dated the 23d of that month. The short time that had then intervened between his arrival and the writing of his letter was so entirely occupied in examining the accounts and inventories, and taking possession of the properties and effects of the association previously to entering on the responsibilities of his office as chief commissioner, that he had been unable to take more than a cursory view of the state and condition of the works at the mines. It will be recollected that Capt. Hitchens in his letter, printed in the last report, expressed his confident opinion that Bananal could be carried on to a much greater depth, and that satisfactory results would be realised; and it is gratifying to know that he now on the spot expresses himself as not having seen anything to change the opinion he formed before he left England. His words are:—"Being here only a few days, I have not had time to fully examine your mines, but, as far as I can judge, the capabilities of Bananal Mine, to a much greater depth, are great. The management of the machinery must, however, undergo alterations, and all the fall of surface water must be directed to the level of the mine, and the exercise of a sound judgment, which requires practical experience, is required in the management of the mine, and these the directors are confident he will devote unparagonably to the duties he has engaged to perform, and they are prepared to afford him all the support he may require, so far as prudence and economy will allow. At Gongo Soco, the directors have determined to resume extensive works, by adopting an economical method of open cutting, and stamping the Jacutinga on a very large scale, which plan was alluded to in the 43d report as having been approved by able and experienced mining agents in Cornwall. The opinion of almost every person who has been consulted is very favourable, and we are confident that the success to be anticipated from this mode of working. In those parts of the Gongo Mine which have produced gold so abundantly, as well as in other places, and at Cumbe Mine also, which were not sufficiently rich for the "bates," or to remunerate the expenses, labour, &c., attendant on mining, enormous quantities of Jacutinga remain, containing gold, and sufficient to supply profitably a considerable number of stamp-heads for many years. Capt. Wm. and John Tregoning, sons of Capt. Wm. Tregoning, the first chief mining captain the association engaged, upon whose recommendation Gongo Soco was purchased, and who have worked nearly three years, have been recommended to take a modified plan for taking away the mass of Jacutinga at a very insignificant cost, as compared with any method heretofore adopted. The force required to operate on this mass, which the late Capt. Wm. Tregoning was of opinion would pay well, will be trifling; and the outlay, to enable the Messrs. Tregoning to commence their plan, and supply stamps with 300 tons of Jacutinga daily, is strictly limited to \$5000—the extension of the system to depend on the profits of the work as it proceeds. The Messrs. Tregoning, who have planned and executed the scheme, pay their own expenses from England to the mine; and no confidence is they in the reason that they forgo all salary, stipulating only for a small per centage on the profits as their remuneration. The following is a short outline of their intended proceedings, written by themselves:—"So soon as we arrive at the mines, furnished with the railway materials and labourers, we purpose to commence our plan, by making a tunnel at or about the 14 ft. level, to perforate the auriferous Jacutinga formation to about its centre, when there would be an open cutting commenced, by shooting the stuff through a shaft into the waggon below, which will be connected from that point to each of the stamps, there to be pulverised and washed in the usual way; by these means all isolated bunches of gold would no longer escape detection, as the whole mass will be wrought upon, and the gold extracted for 1 s. per ton. We purpose to commence extracting the gold from 300 tons of Jacutinga per diem, which, we consider, will leave a large profit per annum, and gradually to extend our plan; we expect to commence open cutting on different parts of the formation, which the position of the respective stamps will partly govern. One sawing immediate operation will be at the Lyon's shaft, where we purpose to make an immense open cutting east and west on the auriferous formation from that place. It is very satisfactory to know that Capt. Hitchens and our late chief commissioner (Mr. George Vincent Duval), corroborate the statements and opinions of the Messrs. Tregoning, and many others, as to the immense quantity of Jacutinga holding gold still in Gongo. Captain Hitchens, in April last, stated 'the Jacutinga to be almost inexhaustible,' and on the 23d August writes:—"I have hopes of being able to turn Gongo Soco to good account, as it is an undeniable fact that millions of tons of auriferous Jacutinga yet remain in the mine." A further and no unimportant advantage, under present circumstances, is also offered by this arrangement—viz., that Capt. Hitchens will not have his attention divided by the minute and daily details of two establishments, as a general inspection and superintendence only will be required of him at Gongo, and the details be left to the Messrs. Tregoning, whose residence will be confined to that estate. The Messrs. Tregoning and five men will leave England during this month, and will probably reach Gongo, and commence their works, by the month of March or April next; and four months after they reach the mines they engage to have their plan fairly in operation, and to begin stamping and returning gold.

The quantity of gold from Gongo in the last six months, ending 30th June, has been 90 lbs. 3 ozs. 6 dwts. 9 grs., and from Bananal 140 lbs. 11 ozs. 3 dwts.; together, 240 lbs. 1 oz. 9 dwts., and will realise 9484. 8s. 5d. The gross expenditure for the same period at Gongo, Bananal, and in England, has been 7407. 9s. 1d. (equal to about 13 ozs. per day), or 20 1/2 lbs. 5s. 1d. less than the last half-year. The arrears of salaries, &c., are also diminished by 1612 lbs. 6s. 1d. The mines have yielded a surplus in the last six months over expenses of 17400. 10s. 4d.

The Chambers at Rio will assemble early in 1850, when the petition of the association, praying to be charged only 5 per cent. duty, will be presented. Sir Isaac Lyon Goldsmith, Bart., has become a trustee in place of George Lewis Hollingsworth, Esq., whose decease was announced in the last report. The force on the 30th June consisted of 46 Europeans, 34 native labourers, 286 negroes; total, 466 persons. During the half-year there were only two deaths, thus fully maintaining the very low rate of mortality stated at page 4 of the *Forty-fifth Report*; and the whole establishment continued, to the latest advice, particularly healthy. The anxious endeavours of the directors have been at all times to adopt such changes in the management of their mining properties as they believed, after mature consideration, would be for the advantage of the association; and so long as they possess the confidence of the proprietors, and feel, as they now do, that the mining estates of the company fairly justify every reasonable hope of success, they will not fail to continue their unremitting and best exertions.

The following is a statement of receipts and expenditure for the half-year ended 30th June last:—

Dr.	Balance Sheet.	
Balance last account	£ 577 4 10	
Salaries—Bananal and Gongo	3946 18 6	
London	716 0 0	
General expenses—Bananal, Gongo, and London	3944 10 7	
Calls (balance)	13 10 0	
Balance	2249 18 10	
Total	£10,247 2 9	
Cs.		
Half-year's dividend on £35,000, 34 per cent. stock	£ 294 8 1	
Proceeds of gold from Gongo	3379 12 0	
Do Bananal	5768 16 5	
Arrears of calls	105 0 0	
Proceeds of 223 shares over calls due thereon, transferred from a/c	599 6 3	
pence account, and carried to profit and loss		
Total	£10,247 2 9	

LIABILITIES.	
Arrears of salaries and wages, and moneys reserved for passages	£2434 5 8
Balance of above account	£ 2249 18 10
Stock, 34 per cent.	25,000 0 0
Twenty Imperial Brazilian shares, office furniture, and palladium	

The CHAIRMAN then observed, that the proprietors would see from the report that the directors had not been idle; and he considered the arrangements entered into with the Messrs. Tregoning, for working Gongo Soco Mine, a very valuable measure. He then alluded to an item in the accounts of 599. 6s. 3d., the produce of 223 shares, over and above the amount due for calls, which had been forfeited and sold. He had received an anonymous letter on the subject of these shares, signed "An Old Shareholder," most abusive and insulting to the directors. He believed, since he had been chairman of that board, twenty-five years, he could appeal to the meeting whether there had been the least signs of unfair dealing, or whether every information had not always been most readily given; he called upon the "Old Shareholder" to avow himself, and openly seek an explanation. As nobody responded to this call, he (Mr. Walker) said, "then I treat him with the contempt he deserves, by tearing his letter to pieces;" and simultaneously suited "the action to the word." He then explained that, on realising the amount in question over and above the calls, the directors considered it advisable to keep the matter open for a time, and carried the amount to a suspense account, in the correctness of which mode the auditors fully concurred. As, however, this anonymous letter had been received, they had now brought it forward into the general balance-sheet, and this was the whole explanation of the matter.—In answer to a question from a proprietor, the CHAIRMAN said, Mr. Henwood had arrived in England, but had not yet come to London.

The report and accounts were then received, adopted, and ordered to be printed and circulated among the proprietors.—A vote of confidence and thanks was passed, with acclamation, to the directors, to which the Chairman replied, and the meeting broke up.

DEVON AND COURTEY CONSOLS MINING COMPANY.

At a two-monthly meeting, held at the mine, on the 18th instant, JAMES DIAMOND, Esq., in the chair, the accounts were examined and passed, showing—Balance last account, 482. 5s. 3d.; labour cost, Sept., 1505. 5s.; ditto Oct., 1391. 19s. 7d.—3881. 9s. 10d.—By ores sold, 857. 18s. 4d.; calls, 1277. 15s.; leaving balance against the company, 1247. 16s. 6d.—A call of 5s. per share was made.—The following is an estimate of the current two months' liabilities, and how to be provided for:—

Dr.	Balance as above	£124 16 6	Cs.	Ores sold, not paid for	£144 0 0
Sundry accounts	82 0 0		Do. raised, not dressed		
Estimated cost, Nov.	80 0 0		estimated at	144 0 0	
Do. Dec.	100 0 0		Call made this day, 5s. per share		
	£386 16 6				

The following report, from Capt. N. Secombe, was read:—

Nov. 13.—I beg to inform you, that since our last general meeting, we have sunk the winze in the bottom of the 40 ft. level, on the gossan lode, 3 fms. 2 ft. 11 in.—the lode being generally large, and composed of capels, mudstone, and quartz, interspersed with stones and spots of ore in various places, but the water is now become so plentiful as to render it absolutely necessary to suspend all operations in this place. We have now resumed sinking our engine-shaft; and on Friday last, being our setting day, we set to sink 10 fms. below the 50 ft. level, and to complete all necessary alterations in our pit-work, for 1600. In the back of the 40 ft. level we have risen 3 fms. 2 ft., and stopped 8 fms. 9 ft. 6 in.—the lode being on an average worth 64 per fathom; this stop is now set on tribute to four men, at 4s. 3d. in 11. In our 50 ft. level we have intersected the gossan lode, east of the great cross-course, and driven east on it about 2 fms.; the lode in this place is 24 fms. north of the south lode, having an inclination south of about 2 ft. in a fathom; we have also intersected this lode 36 fms. further east, where it is 41 fms. north of the south lode, having in this place an underlay of nearly 3 ft. in a fath. From those observations, I calculate that, in about 10 or 12 fms. below this level, those lodes will unite, when a considerable improvement may be expected; in the back of this same level, on the south lode, we have two pitches, worked by four men, on tribute; these pitches are at present looking well. We sampled on Saturday last the 9th instant 18 tons of ore, worth about 1400. The quantity of ore for the next samplings, which we are about to commence dressing, I estimate at about 20 tons. Upon a review of the operations of this mine, I think every shareholder will be gratified to see that our prospects continue to improve; and there is every reason to expect, as those lodes are explored at deeper levels, greater quantities of ore will be realised.

HEIGSTON DOWN CONSOLS MINING COMPANY.

At the two-monthly meeting of adventurers, held at the offices of the company, Threadneedle-street, yesterday—G. K. HUXLEY, Esq., in the chair—the accounts were presented, showing—Balance last account, 3492. 16s. 9d.; tin ore sold, 1632. 8s. 7d.—5125. 0s. 4d.—By labour cost, August, 1887. 14s. 8d.; September, 1981. 0s. 9d.; sundries, 237. 7s. leaving balance in favour of adventurers of 1022. 17s. 11d. A call of 2s. per share was made. The following is an estimate of assets and liabilities, for the current two months:—

LIABILITIES.		ASSETS.	
Estimated cost, Oct.	£ 200 0 0	Balance above	£ 102 17 11
Ditto Nov.	200 0 0	Estimated proceeds of 4 tons	
Office expenses and dues	32 10 0	3 cwts. black tin	130 0 0
	£ 432 10 0		£ 232 17 11

And above call of two shillings per share.

The following report was read to the meeting:—

For your meeting of the 16th inst., I beg to hand you a few particulars, having reference to the present appearance and prospects of this concern; and although but little of a definitive character can as yet be submitted, yet, from the statements that will be fairly admissible, it will be seen that we are in such a condition as to induce its further prosecution with all the energy and speed that circumstances shall be found to admit of. Our engine-shaft (Bailey's) is now down to a depth of 45 fms. from surface, at which point we have intersected the lode, and find it to be very large; but as yet, however, showing very little ore. In our progress, small "droppers" of yellow ore, and of a kindly description, have been met with, and we have yet to learn what further improvements may take place; for although we are upwards of 90 ft. in the lode, no north wall has yet been reached; and from the circumstance of the lode in the level above (the 35) being more kindly on its north part, it may be reasonably inferred, that on getting through the present capels, which we looked forward to be able to do shortly, a similar improvement in the character of the lode may take place, with the probability of meeting with more ore. Increased water from the lode is also apparent, which is rather confirmatory of our views and anticipations; and, moreover, what is in my opinion additionally favourable, the lode has a declination of about 20 in. in a fathom only.

The next point of operation to be looked at is the 35 ft. level, which is being pushed forward eastward, with all possible dispatch, by a force of six men, and is now about 45 fathoms beyond the engine-shaft; this level was driven through poor and hard ground for many fathoms, when it was deemed advisable to cross-cut northward, and ground of an improved nature was met with, and, by a reference to the monthly setting papers, the difference in the prices given for driving up and down in the ore, but for the present are left standing, the ground between, consisting of capel and spar, being taken away for the better saving of the ore when it comes to be worked. This lode has been driven on in all for about 6 fathoms only, and so far, has been quite in the granite, and also, considering the comparatively shallow depth of this driving, the improved result clearly indicates, in my opinion, that my oft-repeated views and anticipations, in respect of the deeper working of this concern, will be surely realised. We shipped, yesterday, the parcel of tin ore—say, 4 tons 3 cwts.—for Truro, purchased by the Messrs. Williams, Harvey, and Co. The cost was computed as at about 9000. to 2200. per month, in the contracting of which all due care and economy is observed.

WHEAL WHITE.—At a meeting of adventurers, held at the mine, on Tuesday, Mr. J. T. White, the purser, in the chair.—The accounts for July, August, and September were passed, of which the following is an abstract:—July cost, wages, &c., 594. 6s. 4d.; August ditto, 794. 7s. 11d.; Sept. ditto, 1294. 17s. 7d.; balance against the adventurers last account, 137. 4s. 10d.; merchants' bills, engine, &c., and putting up ditto, 274. 18s. 4d.—5577. 6s.—To tin sold, Sept., 577. 10s.; ditto Oct., 732. 14s. 1d.; ditto November, 882. 15s.; cash received for call, 1744.; received on account of shares sold, 61.; balance due from the adventurers, 1622. 5s. 11d.—5577. 6s. A call of 17. 10s. per share was made.

KINGSETT AND BEDFORD MINING COMPANY.

A general meeting of shareholders was held at Exeter, on Monday, the 5th instant. Capt. W. FULFORD, R.A., in the chair.

The accounts for three months were audited and passed, showing a balance of 561. 12s. 10d. in favour of adventurers, exclusive of 592. arrears of calls.—A resolution was passed empowering the committee to make a call of 10s. per share, in two instalments, and also the forfeiture of shares on which calls remained unpaid. Lieut.-Col. Harding and Capt. J. Fulford, R.N., were added to the committee of management.—The following statement of accounts was presented to the meeting:—

By arrears of calls	£ 5 15 0
Calls made in July, August, and September	450 0 0—£455 15 0
Deduct arrears of calls due from adventurers	59 0 0
	£396 15 0
Balance due from adventurers	£ 5 3 7
Sundries	30 19 10
Cost sheets for July, August, and September	304 19 9
Balance in hand	50 12 10—£396 15 0

The following report, from Capt. J. Spargo, was read:—

The level driven south of the rise, in the Bedford property, is abandoned for the present, until we have holed to the adit by the winze, sinking 5 ft. from the present end; we have extended this level from the rise about 25 fms.—all of which is through good lead ground; and, as soon as we have holed to the adit, we shall be in a position to send large quantities of lead to market. Our winze is down about 3 fms.; there remains 5 fms. more to sink. I have this day set the new rise about 60 fms. to the south of the old rise; on the same lode we expect we shall meet with a great improvement by rising about 4 fms., which will be just the same height that we discovered the course of lead in the north rise; this rise will serve for engine-shaft to sink under the adit, as well as under the old workings to the north of Luke's shaft, where we are certain there are large quantities of lead to be risen. I am anxious to see my repeated reports verified by returns of lead, as well as place the mine in a higher position, which we shall shortly do after our dressing-floors are in order, and a small crusher erected.

In driving on the copper lode the ground is still more congenial for lead than copper, and it is still my opinion, when we reach the great lead lode on the top of the hill, we shall meet with something satisfactory, as I before stated; still I would advise an abandonment of this end for the time, and spend the same amount of money in driving a cross-cut at Carpenter's shaft, to cut the two lodes that we recently discovered. I hope the committee will see the propriety of doing this, as they are splendid lodes, and it is the opinion of all who see them that they will make abundant returns when the level of the deep adit by a cross-cut from Carpenter's shaft. I cannot exactly state the length of cross-cut, as the lodes appear to be going down perpendicular, and their horizontal bearing a great many degrees more east of south than our present lode; notwithstanding, looking at the great convenience of driving the cross-cut, and in getting away the deads, &c., I would strongly recommend four men immediately to be set to work; it is about 15 fms. to Carpenter's shaft to the deep adit, and I think we shall have to drive about 15 fms. to cut these lodes, and get about 45 fms. of backs; the ground at present is soft for driving. I should say about 37. per fth. would be a fair price, and I am fully persuaded that you will not regret the expense of this cross-cut.

WHEAL MARY ANN MINING COMPANY.

At a quarterly meeting of adventurers, held at the White Hart, Liskeard, on the 14th inst. PETER CLYMO, jun., Esq., in the chair.

The accounts were examined and passed, showing—Lead ores sold July 28, 60 tons 11 cwt., 1087. 18s. 8d.; ditto, Aug. 27, 93 tons 15 cwt., 1118. 8s. 1d.; ditto, Sept. 24, 67 tons 2 cwt., 3 qrs., 1132. 16s. 7d., and 45 tons 13 cwt., 2 qrs., 502. 1s. 5d.; received for miners' tools, 12s.—5886. 16s. 4d.—Labour cost, June, July, and Aug., 2532. 0s. 8d.; merchants' bills, 5362. 4s. 3d.; leaving balance of profit, 9682. 11s. 5d.; to which add balance last account, 1017. 10s. 8d.—10699. 11s. 1.; from which deduct paid dividend for sett, 10000., and dividend (17. 5s. per share), 6407.—leaves 8462. 11s. 1d. to carry to next account.

The following is the general balance-sheet to end of August:—

Cost paid for September, but not charged	£693 7 2	By balance, as above	£346 11 1
East Cornwall Bank balance	1529 14 10	Sums charged above, not paid	832 3 9
		Tamar Smelting Co., for ores	1035 7 2
Total	£2214 2 0	Total	£2214 2 0

The following report, from Peter Clymo, jun., Esq., was read:—

Nov. 14.—Pollard's shaft is sunk 5 fms. under the 50 ft. level; the ground at present is more favourable for sinking than it has been for some time past, and the price is required from 45 to 237. per fathom. The lode in the 50 ft. level, north of the shaft, is 2 ft. wide, and worth 18. per fth.; in the same level south it is 2 feet wide, and worth 67. per fathom. The lode in the 40 ft. level south is 14 ft. wide, producing good stones of lead. Nothing has been done either in the 30 or 15 fathom levels since the last report, the men having been employed in raising stones for the steam-whim engine-house, which is now completed; the driving of these levels will, therefore, be now resumed. The lode in the 50 ft. level, south of Pollard's shaft, is 4 ft. wide, and worth 94. per fth. The lode in the 50 ft. level south is at present small, but producing some lead; we expect an improvement here shortly, as there is a good lode gone down under the level above, and we have also a good lode coming towards Pollard's shaft. The stopes generally throughout the mine are looking very well. We sampled on Saturday last a parcel of lead ore, computed 73 tons, which will be sold on the 19th inst. In conclusion, I beg to say, that we calculate to give the adventurers an increased dividend at the next meeting; and, on the whole, we consider our prospects to be very cheering.

WHEAL TRELAUNY MINING COMPANY.

At a quarterly meeting of adventurers, held at Webb's Hotel, Liskeard, on the 18th inst. CHARLES CHIPPENDALE, Esq., in the chair.

The accounts were examined and passed, showing—Lead ores sold July 20, 100 tons 12 cwt., 3 qrs., 1710. 6s. 4d.; ditto August 23, 106 tons 0 cwt., 2 qrs., 1783. 17s.; ditto September 27, 108 tons 13 cwt., 1 qr., 1993. 7s. 6d.; Wheal Trehaun adventurers, for use of engine and water, 82. 10s.; J. Serpell, for rent of field, 31. 1s.—5573. 1s. 10s.—By labour cost for June, July, and August, 3708. 8s.; merchants' bills, 817. 4s. 2d.; sundries, 54. 9s. 8d.; leaving balance of profit, 1042.; to which add balance last account, 1144. 12s. 7d.—2186. 12s. 7d.; from which deduct paid Mr. West, for steam winding-engine, 5800., and dividend of 42. per share, 10407., leaves to carry to next account, 5662. 12s. 7d.—The following report, from Capt. Joseph Kemp and Thomas Ellery, was read to the meeting:—

Nov. 13.—In the 82 end, north of Phillips's shaft, the lode is 3 ft. wide, worth 82. per fth.; in the south end, in this level, the lode is 24 ft. wide, worth 52. per fth. In the 73 end, north the lode is 24 ft. wide, worth 97. per fth.; in the south end, in this level, the lode is 24 ft. wide, worth 94. per fth.; the winze under this level, south of the shaft, is being sunk by the side of the lode. In the 62 end north the lode is 4 ft. wide, worth 132. per fth.; two winzes are in the way of sinking under this level north of the shaft; in the south one the lode is 2 ft. wide, worth 107. per fth.; in the north one the lode is 2 ft. wide, worth 147. per fth. Trehaun's shaft is now down to the 82 ft. level, and we shall immediately commence a cross-cut to the lode. In the 73 end north the lode is 4 feet wide, worth 94. per fth.; in the south end, in this level, the lode is 2 ft. wide, worth 77. per fth. In the 52 end north the lode is 4 ft. wide, worth 77. per fth. At the north mine, in the 55 end, north of Trehaun, the ground is hard, and the lode at present poor; but we confidently expect an improvement every day, as the prospects in the 50 end, south of Smith's shaft, are very favourable. We are glad to be enabled to state that there is an improvement in the 40 end north of Smith's, where the lode is 1 1/2 ft. wide, worth 42. per fth. The stopes generally are looking much as usual, except in the back of the 73, north and south of Phillips's shaft, where they are better than usual, and our prospects on the whole are encouraging.

NORTH ROSKEAR.—At a meeting of adventurers, held at the mine, the accounts for August and September were examined and passed, showing—Ores sold, 4886. 4s. 8d.; cost for August and September, 4198. 12s. 9d.; leaving profit, 687. 11s. 6d., to which add balance in hand last account, 2266. 19s. 4d.—2944. 10s. 10d., from which deduct dividend, 7007., leaves 2244. 10s. 10d.

WHEAL CALSTOCK.—A meeting of shareholders was held at Mr. George Trickett's office, on Tuesday last—J. L. COLLEY, Esq., in the chair.—A report was read from Captain W. B. Collium, who stated that, since the meeting on the 22d August, they had erected the 50 ft. engine-wheel, and cut a new level through Kelly to bring the water to the wheel. The old men's level west is to be driven so as to reach the bunch of ore gone down in the bottom of the deep adit, and it is expected the men will reach the ore ground at an early date. The shaftmen are engaged clearing the 12 ft. level east. The main lode is south of these workings, and should the old men not have cut this one, a cross-cut must be driven, so as to prove this level. In sinking westward, below the adit, the lode is very large, being 7 feet big, and ore. It is believed that when they go lower into more settled ground this lode will be found most productive. The machinery erected works well, and is most efficient. The report was received, and a call of 51. per share made, payable in four instalments.—*Plymouth Journal*.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

BEALBURY COPPER AND SILVER-LEAD (CORNWALL).—This mine, which was obliged to be abandoned some years since, in consequence of the proprietor being then an infant, and unable to grant a lease, has now been put to work with very flattering prospects by a London company, they having obtained a lease from the proprietor (now of age) upon liberal terms. Machinery will be immediately erected, for effectually working this valuable mineral property.

BLACK CRAIG MINE.—I have just returned from Scotland; and, knowing you would be anxious to hear how all was going on at Black Craig, I send you some particulars by this evening's post. On my arrival at the mine last Wednesday, I was greatly delighted to find that such an improvement had taken place in some of the ore workings during the three weeks I had been absent. In Kermidie's pitch, I found they had opened into a fine solid course of ore for a considerable length, in some places nearly 1 ft. thick, besides an improvement in the mixture, which they have been working for the last three or four months. Ore is discovered to continue very much further to the east part of the ground than we had any idea of; indeed, it has been opened out double the length during this last month, and, from appearances, will extend still further. We shall be able to raise a great deal of ore in this place now at 25s. per ton. The new trial (Mitchell's), on Lady Maxwell's side, is turning out exceedingly well; and in a short time we shall be able to put in several more men, as well as in Kermidie's place. Mitchell and partners had a new solid rib and a mixture besides. A few years ago, he and two other workmen raised 100 tons from the same ground from the surface by a small shaft;

and, getting too heavily watered, they were obliged to abandon it, although they had a 6-in. solid branch, and a good mixture throughout the lode, going down in the shaft bottom. The present working is from below; and the men are in good spirits, as there is a good deal of whole ground in this part of the mine; and wherever we can find whole ground, we are certain of finding ore. Armstrong and partners also have a good ore working; so has Crawford. They were very successful last quarter, and they expect to be more so this. Last week we opened into a new and excellent working above Harrison's level, which, making a way up into what is called Davis's pitch, we put ten men into yesterday. They will raise ore fast in it at about 45s. per ton; and by next week we shall be into Davis's ground, which we know to be whole for a considerable distance. The ground is rather hard, and will not leave such a large profit; but we shall be able to set a good number of men in it until the bottom levels are unwatered. The ore in Davis's place will cost about 32.5s. to 37.10s. per ton, which still leaves a good profit. We never had such a prospect of raising such quantities of ore above the adit level as we have now. After the engine is at work, I do not see any difficulty we shall have in raising 200 tons a month. On Tuesday, I met with a miner who was the last man that was in the bottom level at the time of Mr. Nott's death, when the pump broke, and thus filled it with water; and he told me that we should find a good deal of ore already worked to our hands, and the tools of about 40 miners; he says that 50 or 60 men can be set on to work ore immediately the water is out. Cost for July, August, and September, 600*l.*; ores raised and sold, 1076*l.*; profit during the three months, 476*l.*

DELABOLE SLATE QUARRY.—After sinking an area of more than an acre, to an average depth of more than 80 ft., they are at length in the large bed of the most splendid slate; and the Delabole, Pengelly, Bird's Island, and Land-work Quarries, are all producing large quantities of slate, far more than they have heretofore done; and the demand for the article is unusually active.

DUREN MINE.—The ore ground in the top level has greatly improved, and there is a good course of ore for 4 ft. wide there, with very excellent stuff coming out of the mine. There is nothing new in the other bargains.

EAST BALLESWIDEN.—This mining set is situated in the parish of Sancreed, about three miles west of Penzance, and in one of the greatest mineral districts in Cornwall, being surrounded by the following mines:—Ding Dong to the east, Penzance Consols to the west, Wheal Concord to the south, and Ballewidren to the north. Those mines are now in full working. Ding Dong and Ballewidren have given immense profits to the adventurers, and still continue to do so. East Ballewidren Mine, from its well-known locality, and the inexpensive way in which it can be developed, is not to be surpassed in the county. The set is very extensive, and it is admirably situated for water-power, as a never-failing stream bounds the whole eastern extremity of the set, and will put the mine to any depth. There are several champion tin lodes, likewise counter lodes, and a number of branches or veins of tin, leading from one lode to another. These lodes and branches have been worked above the adit level (which is about 17 fms. deep) to a great length, and produced immense quantities of tin, and presents greater workings than most mining sets—a proof that the minerals lie shallow, and have been found valuable when raised. Its proximity to Penzance Consols and Ballewidren Mines renders it more valuable than it would otherwise appear to be, in consequence of Penzance Consols having during the short period of her working raised upwards of 33 tons of tin, and at the present time looking exceedingly well, especially in the bottom level going down; and Ballewidren Mine has, during the last nine years, produced the astonishing quantity of 250,000*l.* worth of tin, giving large profits to the adventurers, and still looking well. The grant of this set is for a term of 21 years, at the very moderate rate of 1-20th dues. The geological features of this valuable and extensive mining set cannot, according to opinions of practical mining agents, be exceeded in Cornwall or Devon. The lodes are running through a strata congenial for tin, being in a rich granite, similar to the tin deposits of the neighbourhood. It may, with propriety, be stated that there never was any machinery erected on the set for draining the mine, although the adit level is driven west nearly 70 fms., and has intersected and cut several lodes; many have been wrought on, and been very valuable. No doubt, but that the ancient tinners must have been well remunerated for their perseverance, as the tinstuff raised by them had to be carried several miles to a water-stamp, on mules' backs, to be stamped and made marketable, all of which can be done now on the mine. Considering the locality, and its beautiful stream of water, which for a tin mine cannot be too highly appreciated, and also the value of its western mine (Penzance Consols), where, when a suitable engine was erected, and the water drained, a beautiful lode of tin was discovered, this will shortly stand unrivalled in the county as a tin mine. This presents cheering prospects as to the value of East Ballewidren; and it may, with propriety, be asked, why should it not be the second-best tin mine in the county? The value of this extensive set is considered very great—such, indeed, as cannot be easily estimated; and its equal has been rarely met with in any mining district. This affords an excellent opportunity to capitalists desirous of embarking in such a peculiarly favourable adventure.

PENZANCE CONSOLS is very much improved; a lode in the bottom end west is worth 40*l.* per fm.; and a lode in the shaft holding down is worth 45*l.* per fm.

TAVISTOCK CONSOLS.—You will be very glad to learn the lode in this shaft continues to improve for tin, and maintains its size—being nearly 6 feet wide, and composed of large masses of mudie, mixed with spar, peach, and prian; the two latter are in larger quantities than they have heretofore been, and seem to contain the tin. We have been a little prepared for finding tin instead of copper—the captain having maintained against most other agents that it would be so for the last 12 months; and an old tributor from Polgooth, who has been working for some time here, has held the same opinion; but we scarcely hoped that such a large, regular, and strong mudie lode would produce tin; but so it is; and we are all, as you may suppose, in high spirits.

WHEAL ANDERTON.—I regret that I did not (if I may use the term regret) purchase some shares in this mine, which were offered to me at 5*l.* when I was last in London. They have here a good, very good, lode in the 70 west, a good lode in the 80 west, and reason to think that this leader has not been seen above the 70, but still stands to the south of the higher levels; this has to be proved. Capt. Carpenter is driving to cut the Tavistock Consols lode in his 80 fm. level west, and is now quite clear of the cross-course. He will probably cut the north lode first, and then drive to cut the other two lodes: it is not likely that he will let down much water, as the Wheal Ash adit takes off all the grass water.

WHEAL MAY SILVER AND COPPER MINE.—In consequence of some important discoveries having been reported by the captain to have been made in this mine, the chairman of the finance committee, in company with other gentlemen, went to the mine on the 2d instant, and inspected the newly-discovered lode, from which he broke a large sample of ore, as an average of the whole lode, and since his return has pulverised it with his own hands, and got a friend on whom he could rely to assay it. The produce of five assays averaged 141 ounces of silver in the ton of ore, and 26 per cent. for copper; thus corroborating the correctness of the captain's report.

WHEAL PROSPER.—In reply to your inquiries respecting this mine,—It is situated on Dartmoor, as you are aware. On the north lode we are sinking a winze in the bottom of the level, to prove if the branch of tin is making down; and I believe there can be no doubt but that it is. Our backs on this lode are working for 12*l.* in 12*l.* On our south lode we have gone back to the foot of the hill near Walkham River, and have commenced our adit for the south lode; we have driven about 8 fms., and have got the lode, but it is at present shallow, not more than 2 fms. of backs. In driving about 20 fms. further on this lode, we shall have from 25 to 30 fms. of backs. The lode at present is 3 ft. big, carrying two regular walls, and producing tin; and, from its present appearance, we shall not have many fathoms to drive before we shall have a good lode. We shall have these backs for nearly one mile in length; and all our work can be done without an engine of any sort. As a new concern, I do not believe there is a better speculation in the two counties.

[From the Plymouth Journal.]

BURCH TON AND VITIFER MINES.—At Vitifer lode, we are at the bottom of the old engine-shaft, and we can go 30 fms. west of this shaft, in the 8 fm. level; all the backs are taken away, and at this point the level is full; the south side is very much crushed, and we must secure this side all the way. The northern side of this level is firm. The eastern level is full, and we are clearing and securing it with all possible speed. At Dunstan's shaft, the ground in the 30 fm. level west is improved, and so is the lode. We have a very promising lode in the 20 fm. level east of this shaft. The 10 fm. level, west of this shaft, is opening profitable ground. We have cut the lode in the 10 fm. level, east of this shaft, to-day; I am not in a position to say anything about the value of the lode at present, you shall have that in my next report. The ground in the cross-cut in the north lode is improving. There is no change in any other part of the mine. The sampling will be about 5*l.* tons.

PLYMOUTH WHEAL YNOLAND.—The engine-shaft has been sunk about 10 ft. under the adit level, on the course of the lode, and is producing good work. In the adit level west there is a good lode, and the spar in the level east has died out, and the lode considerably improved. The train road, to bring the stuff to the cart road, is finished, and in use. On the whole the mine looks healthy, and is almost paying cost, whilst valuable ground is being laid open.

WHEAL FRANCO.—There is little change since our last; it is, however, satisfactory to know that the mine is making some profit.

TAVISTOCK CONSOLS.—The lode in the shaft on the Wheal Ash lode is producing rather more tin than at our last report. We are at present dropping two pumps, but the sinking will be resumed to-day. There is an increased quantity of water coming up.

SINGULAR OCCURRENCE ON A TELEGRAPH LINE IN PRUSSIA.—A curious accident occurred to the electro-telegraphic line between Berlin and Stettin the other day. The communication having been found to be interrupted, search was made for the cause, when a mouse's nest, with a little brood, was discovered in the gutta-percha tube, and it appeared that the little animal had contrived to gnaw through or disturb the wires.

THE PROPOSED CERRO DEL BOTE MINING COMPANY.

SIR,—I am given to understand, that the contract between the owners of the Cerro del Bote Mine and the Bolanos Mining Company having been, by mutual consent, cancelled, and the mine having in consequence ceased to be the property of the company, it is proposed to form a new concern, under the more attractive title of the "Cerro del Bote Mining Association." This mode of proceeding is the best, under all circumstances, that could be adopted. As the old Bolanos shareholders did not come forward in a manner that would pronounce them desirous of retaining the mine in their possession, it reverts to the owners, on terms which will leave the concern to those new adventurers who may be desirous of trying their fortune untrammelled by debts, and with everything requisite to enable them to proceed with that spirit which so extensive, and so evidently valuable an undertaking merits.

A very rare opportunity now offers for persons of an enterprising spirit to invest their capital to advantage. The most prominent excuses of those who did not respond to the call of the Bolanos directors were that—first, they had not confidence in their management; second, they did not see the necessity for such directors; and third, they considered the expenses of management too heavy. I will not discuss the merits of these excuses; but will only suggest that it will be in the power of the subscribers to the new company to obviate these difficulties. Those in whom they had no confidence, as managers of the Bolanos Company, can only be interested in the Cerro del Bote Company to the extent of their subscriptions; and it will rest with the proprietors to elect whom they please to direct their affairs. If they consider four directors sufficient (and in a multitude of counsellors there is not always safety), let them elect only four. They may impose what terms they please on the newly appointed board of directors—having reference to the expenses of management, nomination of employees, and so forth.

On receiving over the mine, the new company will not have to wait until either underground or surface works are completed ere they commence their operations. On the contrary, everything is ready for them; the dinner is cooked and set before them, they have only to eat it. They have even an engine, a very excellent one, that has only been worked since its erection during a sufficient period to prove its efficacy. The first thing to be done—and on this, in a great measure, will hang the issue of their labours—is, to procure a good supply of stores of all kinds, the deficiency of which, concomitant on the want of funds, seems to have hastened the dissolution of the Bolanos Mining Company. A good supply of fuel for the engine, and of salt and quicksilver for the hacienda, is indispensable.

But I am digressing; it is not my vocation to point out what can be done, or what must be done. With capital judiciously employed on such a mine, as all agree in describing the Bote to be, everything can be done—without it nothing. It is impossible to draw water out of a well without a bucket. I merely wish, through the medium of the *Mining Journal*, to enumerate to gentlemen interested the advantages of which they would derive the benefit in undertaking to work this mine, and to impress upon them the folly of rejecting the offer which I am induced to believe its owners are about to make them.

In my humble opinion, a meeting should be called of those who subscribed the 13,000*l.* under the late resolutions of the Bolanos Company, and some arrangement entered into with them for procuring the requisite amount of capital. Many of them would, doubtless, under the new circumstances, be induced to add to their subscriptions; others would induce their friends to come forward; and, by dint of advertisement in the daily press, and through other channels, I have very little doubt that the subscription list would show a satisfactory result.

These, sir, are only my humble suggestions; they may or may not be worthy of consideration. However, great perseverance must be used at the present time, or the Bote Mine will have to remain in the hands of the owners, who, doubtless, were they to proceed with the works on their own account, would, in a short period, amass a considerable fortune.—J. G.: November 13.

ST. JOHN DEL REY MINING COMPANY.

SIR,—I request the favour of your inserting, in your Journal, the enclosed copy of a letter I have addressed to Lord John Russell, on the subject of the St. John del Rey Company.—W. ROUTIN: *Clyd.* Nov. 14.

TO THE RIGHT HON. LORD JOHN RUSSELL, M.P.

MY LORD,—I take the liberty of enclosing your lordship a copy of a petition drawn up by me on behalf of the unfortunate slaves possessed, and hired, by the St. John del Rey Mining Company, at their establishment in Brazil, also a copy of a letter addressed to the Editor of the *Mining Journal* by Mr. Monah, who has recently arrived from thence. Your lordship will perceive that, unless vigorous measures are adopted by the Legislature of this country to compel the manager of the mine, in Brazil, to diminish the labour of them underground slaves, there is every probability that the mortality amongst them will continue as great as ever. And it is with a view to save the lives of these unhappy men that I venture to hope your lordship will present this petition at the ensuing meeting of Parliament.—I have the honour to be, &c., W. ROUTIN.

ASTURIAN MINING COMPANY.—The prospects for the resuscitation of this important company, we are gratified to state, are of a less gloomy nature than for some time past has been the case. The labours of the committee of investigation, and the directors appointed as liquidators, are proceeding satisfactorily; and a successful issue may be anticipated from the result of their arduous labours. There is reason to hope that the hitherto complicated affairs of the company will be arranged, and the re-organisation be formed on a sure and solid basis. The next general meeting is fixed, we understand, for the 27th instant, when a full report will be submitted to the shareholders. The Spanish Government are disposed to treat the claims of the English shareholders fairly and equitably, and although they cannot rescind the decree of the 26th June last, there is no doubt the difficulties, which it was supposed to give rise to, will be obviated by the conciliatory spirit of the authorities. The formation of the new company, if successfully carried out, which, in all probability, will take place, will secure to the old shareholders a prospect of the return of capital they have invested in the present concern.

COMPANY OF COPPER MINERS IN ENGLAND.—The labours of the committee of adjudication, though still progressing favourably, have not arrived at a final termination so soon as anticipated, there still remaining some dissensions among the different classes of share and debenture holders. The suit of Warner v. the Governor and Company of Copper Miners, which was to have been heard only this term, has been deferred. Should the company succeed in obtaining a modification of their charter in the ensuing session of Parliament, it is conjectured all difficulties in the way of a final settlement, and the resuscitation of the company, will be removed.

ELBE COPPER-WORKS.—The *Alfred* barque, which sailed some days since from Plymouth, with German emigrants, among whom was the Prince of Schleswig-Holstein-Noer, is the property of Messrs. Godeffroy, of Hamburg, who are large shareholders in these works. From authentic information, we are enabled to state it is the intention of the proprietors to endeavour to obtain Australian ores to smelt in Hamburg. A gentleman from the Elbe Works was in England last spring, and endeavoured to treat with the Australian Mining Company, and several other foreign companies, for a supply of ores to Hamburg. The negotiation was not completed, owing to there being, at that period, no Australian ores in this country; but a purchase of 200 tons of Cobalt was effected. The supplies obtained from South America not being sufficient for their extended plant, it is their intention to endeavour to treat with some of the Australian mining companies in Adelaide.

THE LOETCHEN VALLEY SILVER-LEAD MINING AND SMELTING COMPANY.—The shareholders in this company having, by the payment of the second call, completed the amount of 50*l.* paid up on their 100*l.* shares, have had their certificates delivered to them.

CALIFORNIA—MORE GOLD.—A letter from New York says, that advices have been received from a party of overland emigrants on their way to California, announcing "that they had found on the Gila River indications of gold to a degree quite unsurpassed even on the Sacramento. This idea of gold on the Gila has been some time popular, and the reports of occasional travellers have strengthened it. For my part, I see no reason to doubt that the whole western slope of the mountains in North and South America, from Behring's Straits to those of Magellan, contain gold, more or less in quantity, as certain species of formations develop themselves, in their own disorderly shapes, projected by volcanic action from their original conformity. I do not doubt that all the rivers and their alluvials, from California down to the isthmus, will be thoroughly explored in the course of a few years, and this will be done by large bodies of men, separated into countless exploring parties. We can easily imagine what a state of things this will produce: California will be but an outpost of the great army of adventurers."

ORDER FOR ENGLISH CANNON AT THE ROYAL FOUNDRY AT LIEGE.—Amongst the Royal decrees of the 31st October, we find the following:—The Minister of War is authorised to have cast, at the Cannon Foundry at Liege, on account of the English Government, three 32-pounders, 6 ft. (English) in length, in cast-iron, each weighing about 1,693 kils., and three 32-pounders, 9 ft. (English) in length, in cast-iron, each weighing about 2,539 kilograms.

NEW STOVES.—At the annual exhibition of the American Institute, some stoves were exhibited, of a novel character; they are of numerous handsome patterns for warming chambers, cooking, heating water for baths, &c., by the consumption of anthracite. The object obtained in their construction is the largest amount of heat, from the smallest quantum of fuel. A kitchen range is so planned, as to constantly keep up a large supply of hot water, so that every family may always have hot baths ready with great facility.

DIED.—At Dyffryn, North Wales, on the 4th inst., Catherine, wife of Capt. Verran, formerly of Devoran, near Truro, aged 49 years.

New Patents.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

R. Parnell, city of London, clothier, for a new instrument for facilitating the stitching and sewing of woven fabrics.
J. Chesterman, of the firm of Messrs. Cutts, Chesterman, and Co., Sheffield, machinist, for improvements in carpenters' braces, and other tools and instruments used for drilling and boring purposes.
C. Cowper, Southampton Buildings, Chancery-lane, for improvements in the manufacture of sugar.
L. A. Duperrey, 119, Faubourg du Temple, in Paris, engineer, for certain improvements in machinery for producing figures in relief.
A. V. Newton, Chancery-lane, county of Middlesex, mechanical draughtsman, for improvements in manufacturing leather.
C. L. A. Meinig, Hamburg, now residing in the city of London, merchant, for certain improved modes or methods of applying galvanism and magnetism to curative and sanatory purposes.
G. E. Donisthorpe, Leeds, manufacturer, and J. Milnes, Bradford, county of York, for improvements in apparatus used for stopping steam-engines and other flat movers.
G. J. Pownall, Esq., Kensington, for a certain mode or method, or certain modes or methods of ascertaining or registering the number of persons entering in or upon passages, conveyances and passage ways, and the instruments and apparatus for effecting the same.
W. Brindley, Nelson-terrace, Twickenham, county of Middlesex, paper maché manufacturer, for improvements in producing ornamental designs on paper maché, and in preserving vegetable matters.
W. Buckwell, Artificial Granite Works, Battersea, engineer, for improvements in manufacturing pipes, and other structures artificially in moulds, when using stone and other materials.
S. Stocker, High Holborn, hydraulic engineer, for improvements in beer engines, beer measures, and tobacco boxes, used by publicans.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

G. Davis, Boar-lane, Leeds, a mercantile steam and hydraulic pressure gauge.
E. Golding, Hurstbourne Priory, Andover-road, Hants, the rolling barley chumper.
R. W. Jearrad, Oxford-street, London, washing apparatus.

PATENTS RECENTLY EXPIRED.

J. Ericsson, London, civil engineer, for an improved instrument for ascertaining the depth of water in seas and rivers.
J. W. Fraser, London, artist, for improvements in apparatus for descending under water.
N. Troughton, London, gentleman, for an improvement in finishing ornamental walls and other ornamental surfaces.
J. Cropper and T. B. Milnes, of Nottingham, for certain improvements in machinery or apparatus for embroidering or ornamenting lolling-net, lace, cloths, stuff, or other fabrics made from silk, cotton, wool, flax, or hemp.
J. J. C. Sheridan, Walworth, chemist, for certain improvements in the several processes of saccharine, vinous, and acetous fermentation.—*Patent Journal.*

DERWENT IRON-WORKS.

A dispute between the colliers and their masters at the Conselt and Crook-hall branches of the Derwent Iron-Works, in the county of Durham, has ended in a manner very disastrous to a large population, which it will throw out of work, it is feared, for the winter at least. The nature of the dispute is understood to be as follows:—Last month, the colliers at Conselt and Crookhall pits manifested a desire to have the wages for hewing coals raised. Being bound for 12 months to work on certain conditions by a bond expiring next April, the men did not openly demand more wages; but raised disputes on various pretexts, and left off work. The managing proprietor, Mr. W. Cargill, considering that the wages were sufficient, as mere lads could earn 4s. 6d. a day for an ordinary day's work, declined to alter the conditions of the bond, and sent several men to Durham Goal for absconding themselves from work without notice. One prisoner was soon rescued from the charge of the police, and a desperate assault committed, for which a number of men were committed to take their trial at the ensuing assizes. The masters then offered the colliers their quitance, if they chose to remove and find better conditions elsewhere. The men did not choose to avail themselves of this, and preferred staying. It seems that the men then entered on a combination to work only half the usual quantity of coals, and to threaten all those not in the union with their displeasure. By this move it was intended to diminish the quantity of coals in stock so as to interrupt the carrying on of the operations of making iron; and when the stock of coals was diminished, the colliers considered they would be in a position to dictate terms to their employers.

Mr. Cargill, considering the colliers to have ample wages, and to be in the enjoyment of great advantages, having found them for 12 days in the fortnight, resolved not to be tyrannised over by what he considers an improper combination in the men to compel their employers to alter an existing agreement, and he has determined to lay in the greater proportion of the works until the colliers choose to break up their union, and resume their work in the customary manner. Notice of dismissal was accordingly given last Saturday to more than four-fifths of the men employed at the various departments of these extensive works, and thus a vast number of people are thrown out of employment in consequence of a combination among the colliers—an insignificant section of the community there, and who, it is alleged, are the only class of men earning high wages. The result is a very unfortunate one, and has thrown consternation among a large and populous district.

GOVERNMENT INSPECTION OF COLLIERIES.—At a large public meeting of the colliers of Northumberland and Durham, held on Thursday last, it was resolved, that Mr. Jude should address Mr. Phillips, the Government Commissioner, expressing their entire disapproval of the plan adopted of selecting only a few pits for examination; and a deputation waited upon Mr. Phillips, by whom they were courteously received, to arrange plans for future inspections—at all of which they wished two of their body to be present. We are glad to find, however, that Mr. Phillips declined to fall in with the dictation evidently endeavoured to be thrust upon him by Mr. Martin Jude and his satellites; and we have no doubt, instead of selecting a "few pits," his district will be generally and impartially inspected and reported on. With respect to the tracts on the necessity of legislative interference, we shall return to the subject in our next Number.

SWANSEA DOCKS.—At the quarterly meeting of the Town Council of Swansea, on Monday last, the affairs of the Swansea Dock Company were brought under discussion; and as it appears that they are not in a position to complete the works, owing to the want of funds from the defalcations of shareholders, and other circumstances in connection with the state of the money market, we are happy to find a plan suggested by which the much-desired object may be attained. It was proposed, and resolutions to that effect passed unanimously, to apply to Parliament for powers to enable the corporation, in their corporate capacity, to purchase and hold shares in the company incorporated by the Swansea Dock Act of 1847, and with the consent of the Lords of the Treasury, to borrow a sum of money on mortgage, or debenture, on the security of the corporation lands, tolls, dues, &c., with interest at 5 per cent. We understand that in an interview, by a deputation, with Mr. Ponington, of the Treasury, that gentleman expressed a hope that, if it could be shown that the docks would greatly improve the trade and position of Swansea, there was little doubt but that the Lords of the Treasury would sanction the measure. It was stated that, if the corporation gave their consent to this proposal, wealthy and influential parties, intimately connected with the borough, would come forward to their aid. The docks, when complete, will, doubtless, pay a handsome return for the capital expended.

ABERDEEN RAILWAY.—As we stated last week, the directors have given notice of their intention to apply to Parliament in the ensuing session for powers to increase the capital; to make alterations in the authorised line and stations in the vicinity of Aberdeen; to repeal the act amalgamating the Aberdeen Company with the Great North of Scotland Company; to authorise the directors to guarantee interest on the new shares which may be created by the company for paying off any mortgages or bonds, and to guarantee interest on any stock into which any new shares may be consolidated. It is intended to apply for powers to raise additional capital to the amount of 150,000*l.*, but it is expected that 120,000*l.* will be sufficient for the necessary stock for working the line.

ACCIDENTS.

Brierley Hill.—An old man, named Price, was literally crushed by a fall of coal, at the Cricket Field Colliery, Brommoor.
Durham.—Peter Stones, aged 73 years, was crushed by a large stone falling upon him whilst at work in the "waste" of the Low Main Seam of the Meadows Pit.—John Young was crushed, at South Hetton, by a rylley running upon him at Morton Colliery.
West Bromwich.—As James Glover was employed in Mr. Bennet's coal pit, an immense piece of stone fell from the roof, rolled down an incline to where he was at work, and then went over him, injuring him so dreadfully that he died shortly afterwards. One of his fellow-workmen managed to run out of the way, but the deceased being lame, had not the same opportunity.—Benj. Pura fell from a scaffold in the shaft in Mr. Field's Hill Top Colliery, and was killed.
Ashdon-under-Lyne.—Richard Waters, aged 16, was killed by falling down a coal pit, being sunk by Messrs. Knowles and Stott at Little Lever, and which was 51 yards deep.
Wheat Selon.—As John Trevelyan, of Cambores, was preparing to blast a hole in this mine, it exploded, and killed him on the spot.
Mynydd Newydd Colliery.—Wm. Jones, aged 15, while descending the pit to attend a prayer meeting, held underground every Monday morning, fell from the ladder, about 40 yards to the bottom, and was taken up dead.
A dreadful explosion, by the bursting of the engine-boller, took place at the Iron Foundry, Greet Green, by which one lad, named G. Head, was killed, and several others severely injured.
Rosley Regis.—An explosion of fire-damp occurred in Messrs. Badgers' colliery, at Old Hill, by which T. Davis, aged 14, was killed, and five men much injured.
Painpsford.—W. Lewis was killed at the New British Iron Company's works, at Aberystwyth, by imprudently sleeping upon a slender tin, and inhaling the sulphur emitted.
Durham.—William Hodgson, while being drawn up the shaft at Ethorley George Pit, came in contact with some framework, and fell to the bottom, about 3 fms., by which he was dreadfully injured.
W. Newton was killed at the Black Prince Colliery by a fall of coal.

JOINT-STOCK BANKS.

NOTICES TO CORRESPONDENTS.

* We must impress upon our correspondents, the necessity of invariably furnishing us with the names and addresses of the persons to whom their communications should, consequently, be noticed, but as an earnest of our good faith.

WHEAL ANDRETON.—The quotation of 54 per share in this mine, as published in our Journal on the 3d inst., was, we are assured, perfectly correct.—Mr. H. B. Eys, of Old Broad-street (the broker who forwarded the price), being then prepared to dispose of shares on such terms. The same amount is also alluded to as the price, in a paragraph among our "Notabilia," in this week's Journal.

"I. S." (Neath).—The original manufacturers of the B B H iron were Messrs. Bradley, Barrows, and Hall, of West Bromwich. Some of the parties are dead, and the partnership is dissolved; but iron with the same mark is still made at the foundry. A quality of the best Stafford iron, termed Albion iron, is made by Walter Williams, of West Bromwich.

"R. C. G." (Gunn's Lake).—The merchants' price of red ochre varies from 4s. to 8s. per cwt. We shall be better able to determine the value when we receive the sample.

"J. B." (John-street, Glasgow).—The bottom of her Majesty's yacht tender, *Play*, was examined on the graving slip at Portsmouth Dockyard the 26th of September last. Mr. Hay, the practical chemist of the yard, and Mr. Peacock, of Southampton, had each a side of the bottom to pay over with their respective compositions. On examination, it was proved that Mr. Hay's side was quite clean and free from grass; while that of Mr. Peacock's was covered with grass and seaweed three or four inches long. It is stated that the Lords of the Admiralty have given permission to Mr. Hay to patent his successful invention. A letter, directed to Portsmouth Dockyard would, no doubt, reach him. A notice of the survey appeared in the *Mining Journal* of the 29th September.

ELECTRICITY.—"W. R." complains that the verbiage of our answer to "Electricus" is incorrect and incomprehensible. We always endeavour to obtain for our correspondents information derived from the most authentic and correct sources. The answer to the question of "Electricus" was taken from the result of Poggendorf's experiments, quoted in page 350 of Professor Leopold Gmelin's *Handbook of Chemistry*, translated by Mr. Watts, of the Birkbeck Laboratory, London University, and published in the present year under the auspices of the Cavendish Society. As this quotation, from such high authority, was a complete answer to the question of "Electricus," we thought it would be an act of presumption to endeavour to amend it by any interpolations of our own, which possibly might have rendered it really as incomprehensible as it at present appears to "W. R."

THE DEMELZA MINE.—"J. S." (Manchester, N.B.) enquires if we know anything of this mine, in which he is a shareholder.—as he can neither get dividends or obtain any information respecting the proceedings of the company. Perhaps "J. S." will forward us a list of the directors, or a copy of the prospectus, when we will endeavour to ascertain some particulars.

ATMOSPHERIC TRACTION.—We have received two or three further communications upon the subject of Mr. Bagge's air-engine, but, as we remarked in our last, the discussion on the invention must now terminate. We are induced to this resolve rather to prevent a recurrence to personalities, than to stay investigation upon a very interesting topic.

"O. M. M." (Hamburg).—Furnace doors for reverberatory furnaces are of different sizes: those most commonly in use are 14 inches long by 11 broad, and 14 in thickness. The copper pots into which the plates are ladled are 1 foot deep, 1 foot across at the bottom and 11 inches at the top, 17 inches long at the bottom and 16 inches at the top.

"J. P." (Swansea).—An essay method of assaying copper ores for silver is—Sample 2 ozs., borax 1 oz., pulverise, add 3 ozs., red lead, or litharge, according to the quantity of copper supposed to be in the ore, and charcoal in proportion to the quantity of oxide of lead.

H. Crawford (Islington).—Nitrogen is not known to us either separately in a solid or liquid form. The great repository of it is the atmosphere, of the whole volume of which it forms about four-fifths. It was discovered by Professor Rutherford, of Edinburgh, in 1772, and may be obtained by several processes, the object of most of which is to take away the oxygen gas from atmospheric air.

O. E. Read (Southwark).—A rumour has reached us, that Whelan Craddock, near Beers-alton, is about to be worked with some activity: we shall, no doubt, in the course of a few days obtain more correct information on the subject.

"A. Loner" (Broad-street).—In addition to the immense sums which were wasted on worthless foreign projects, it appears, from the official returns, that in the years 1845, 1846, and 1847, more than ten millions sterling were expended in parliamentary inquiries and contests by the different railroad schemes.

"B. G." (Coventry).—A voltaic battery, strictly speaking, consists of associated pairs of dissimilar solid metals, zinc and copper. A single pair, or simple voltaic cell, like a single cannon in an artillery battery, is but an elementary portion of a voltaic battery, which is constructed by arranging several pairs together. The simplest voltaic battery, then, will consist of at least two pairs—i. e. of four plates, two of zinc, and two of copper. In arranging these, two glass beakers, or drinking tumblers, are taken and placed side by side, half full of diluted sulphuric acid. A wire is then soldered to one of the zinc plates, and a corresponding wire to one of the copper plates; and one of these plates is placed in each of the tumblers. The second zinc plate is thereafter soldered by one end to the second copper plate, so as to form one continuous surface of metal. The compound plate thus produced is then bent over, so that the soldered edges form the summit of an arch, which resembles a saddle with one flap, consisting of copper, and the other of zinc. This metallic saddle is placed astride of the approximate edges of the tumblers, so that the zinc flap dips into the vessel in which the first copper plate, with the wire, is immersed, and the copper flap into the tumbler containing the zinc plate, with its wire. If we wish to enlarge the battery, we take additional tumblers, and such copper-zinc arcs as have been described, connecting the vessels half filled with dilute acid by the metallic bridges, which dip on either side into the liquid; taking care also that all the zinc semicircles, or saddle flaps, shall be turned in one direction, and all the copper ones in the opposite, so that zinc and copper succeed each other alternately, from the first tumbler at one end of the range, to the last at the other. In actual practice, porcelain, or wooden, or gutta serena cells, or troughs, are generally substituted for glass vessels, and the places of zinc and copper are not occupied by these metals, but by zinc and copper amalgams, and binding screws. But these mechanical adjustments are only for greater economy and convenience, and the battery remains identical with the arrangement described.

G. Clarke (Dudley).—In the construction of the Britannia tubes there have been required no less than 2,000,000 of bolts, averaging $\frac{1}{8}$ of an inch in diameter and 4 inches in length. The quantity of rod-iron consumed for this purpose has, therefore, amounted in length to 126 miles, and in weight to about 900 tons. The sums expended by the Chester and Holyhead Railway Company, to the 30th June last, have been as follows:—Cost of tubular bridge for crossing the Conway, 110,000*l.*; ditto for crossing the Menai Straits, 500,000*l.*; remainder of the line, 2,571,887*l.*; making a total expenditure of 3,571,887*l.*; to this there is still to be added 200,000*l.*, being the contribution to be paid towards the Holyhead Harbour of Refuge.

"A Shareholder" (Cornhill).—The most abundant variety of copper ore is the yellow pyrites.

"Mineralogues" (Islington).—Porcellanite is known in England under the name of decomposed felspar. It is commonly yellowish, sometimes reddish white, occurs massive and disseminated in certain rocks, and is composed of small particles, which possess but slight coherence. It adheres to the tongue, and is soft and meagre to the touch. It often includes crystals of felspar, quartz, and mica, and is evidently derived from the decomposition of granitic rocks, and is infusible. The Saxon porcellain is made of clay from a bed in granite near Meissen, the Austrian clay dug near Passau, and that of Coppenhagen from the produce of Bornholm, an island in the Baltic. The porcellain clay of China is called Koolin. In Britain, a large tract of this clay, which includes crystals of felspar, quartz, and mica, exists near St. Austell, in Cornwall, on the south side of the granite range; it supplies the porcelain manufactures of Worcester.

"H. L." (Manchester).—Although you are an unregistered shareholder, the prominent part you have taken in the meetings of the company would, without any additional circumstance, be sufficient to fix the liabilities on you.

Edward Moline (Stoke Newington).—The slate found in Scandinavia is of very inferior quality, and not at all fit for the English market. Slates, though in a small quantity, are imported there from this country, and would no doubt increase, if the duty was not so heavy, to protect their own manufactures.

"An Engineer" (Woolwich).—From the accounts generally given, it is not easy to form distinct ideas of the dimensions or construction of the Chinese bridges, or to what extent they merit the applications bestowed on them by travellers, of being great and magnificent. The most remarkable one is erected at Suen-tschou-fou, which is built over the point of an arm of the sea, without which the passage would sometimes be even dangerous in a boat. It is 2500 Chinese feet in length, and 20 in breadth; it is supported by 252 strong piers, 126 on each side. All the stones are of the same bigness, as well those which are laid from pier to pier as those which are laid cross-wise, inasmuch that it is difficult to comprehend how stones of such an enormous size should be placed in the regular manner, or even raised, on the high piers.

"Antiquarian" (Westminster).—The Corinthian brass so famous in antiquity, is a mixture of gold, silver, and copper, and is supposed to have been produced by the fusion of these metals, in which city about 1400 years ago was asked and burned by Lucius Mummius, in the 156th Olympiad, about 145 years before the Christian era. Of this valuable metal but little is known. Its epoch of being in use must have been very short, as we are told by Pliny the art of making it had been for a long time utterly lost, and no remains of it are now in existence.

"An Aeronaut" (Chelsea).—The idea of aerial navigation by means of vessels is not a modern idea. In the 56th No. of the *Evening Post*, Dec. 22, 1709, a description and diagram of a flying ship is given, invented by a priest of Brazil, Bartholomew Laurent. In his address to the king of Portugal, whom he prays for a patent, he states, "that by it one may travel 200 miles in 24 hours, carry orders to generals in remote countries, as also letters, recruits, provisions, ammunition, and money; supplying besieged places with all necessities, and transport merchandise throughout the air." This is built with a square stern, and figure-head, was to have her sails drawn from stem to stern, in the form of a semicircle. In the bottom of the vessel were bellows, to propel her when the wind was slack. From each side of the keel were huge wings, to steady her, and the rudder was moveable. Between the sails and the deck was a cover, made of iron, in the form of a net, on which was fastened a quantity of amber beads, which, by some secret virtue, were to keep the ship aloft. At each end of the vessel were to be placed the celestial and terrestrial globes; these were of metal, and contained in them two loadstones, which were to draw, by their attraction, the ship after them, which was constructed of thin iron plate.

"A Student" (Durham).—To obtain the oxide of osmium in a pure, solid, and crystallized state, grind together, and introduce under ground, into a cold crucible, three parts by weight of the insoluble powder, and one of nitre. The crucible is to be heated to a good red heat, on an open fire, until the ingredients are reduced to a pasty state, when osmic fumes will be found to arise from it. The soluble parts of the mixture are then to be dissolved in the smallest quantity of water necessary for the purpose, and the liquor thus obtained is to be mixed in a retort, with so much sulphuric acid, diluted with its weight of water, as is equivalent to the potassa contained in the nitre employed; but no inconvenience will result from using an excess of sulphuric acid. By distilling rapidly into a clean receiver, for so long a time as the osmic fumes continue to come over, the oxide will be collected in the form of a white crust on the sides of the receiver, and there melting, it will run down in drops beneath the watery solution, forming a fluid flattened globe, at the bottom. When the receiver has become quite cold, the oxide will become solid and crystalline. One such operation has yielded 30 grains of the crystallized oxide, which is equivalent to the potassa contained in the nitre employed; but no inconvenience will result from using an excess of sulphuric acid. By distilling rapidly into a clean receiver, for so long a time as the osmic fumes continue to come over, the oxide will be collected in the form of a white crust on the sides of the receiver, and there melting, it will run down in drops beneath the watery solution, forming a fluid flattened globe, at the bottom. 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storms of rain, sudden melting of snow, &c., by which, in the event of any such sudden accumulation, it would open a trap at the mouth, and flow out into the river; and as these excessive floods happen but seldom in the neighbourhood of the metropolis, it would but slightly interfere with the purity of the Thames. A similar arrangement is made for the south side of the river, from Putney to below Greenwich.

While on this subject we cannot help alluding to a plan proposed by Mr. R. RETTIE, of Aberdeen, whom we have more than once had to deal with in our columns, and whose vulgar and ignorant interruption, at the Society of Arts, whenever he is present, has become proverbial. In blundering over a most unintelligible description of a most crude, and ill digested plan (if plan it can be called), in which the estimated expense is ridiculously low, he dictates to the commissioners, derides the efforts of the great body of our engineers, and, in the most egotistical manner, extols himself as the only individual who can save the inhabitants of London from pestilence and death. He says, "the greatest difficulty the commissioners labour under is the want of a first-rate working man, experienced in scientific knowledge, practical mechanics, and endowed with great good common sense, having a mind of his own, and conscious of being able to carry out a series of important inventions and improvements, which are absolutely necessary in this undertaking." Of course, this individual is Mr. R. RETTIE, and the "important invention and improvements" some of his own "scientific" emanations. We only wonder the commissioners allowed so insulting and inefficient a paper to be published; they have, however, well shown him off in capitals and italics, in all his most prominent sentences, and we wish him joy of this "appearance in print" in the Proceedings of the Commissioners of Sewers.

A novel plan has been proposed by Mr. CHARLES HUTTON GREGORY: it is to receive the sewage from the existing outlets in closed tanks, constructed to float up and down the river with the tide, and to discharge their contents into remote parts, independent sewers, or disinfecting reservoirs, at a distance. Mr. GREGORY recommends this plan as perfectly practicable, that the cost would be determinate, and it would avoid tunnelling through strata but little known, and that little showing great risk and incalculable cost. The majority of the plans are, we rejoice to see, proof that the engineering enterprise of this country is anything but on the wane, as they are generally such as might be practically carried out advantageously, the great point to decide next to efficiency being one of economy.

In another column will be found the particulars of an important case, tried before the Judges of the Common Pleas (Lord Chief Justice WILDE, and Justices MAULE, WILLIAMS, and TALFOURD), as to the construction of the Joint-Stock Companies' Act, and how far the rights and powers of companies are affected by errors or oversight on the part of the registrar. The BANWEN IRON COMPANY brought an action against a shareholder named BARNET for the payment of 2400*l.* due for calls on shares held by him. The defendant pleaded that the company was not incorporated, inasmuch as the Deed of Settlement, at the time of its production to the registrar, did not contain the necessary provisions required by the schedule A of the Act, and that, therefore, the complete registration was void, and the plaintiffs out of court. The judges, however, decided on the contrary. Mr. Justice MAULE, in a long and lucid review of the case, said it was, undoubtedly, a very important one, and the Court had given it their best consideration; the matter set forth in the plea did not prevent the company from acting as a corporation. Taking the 7th and 8th clauses of the Act together, there was no doubt but that it was the registrar's duty to make some inquiry, but he is to look to the face of the deed only, whether there appears anything deficient or inconsistent with the 7th and 8th Victoria chapter 110, or any subsequent Act. It might be assumed that the deed was not perfect according to the Act, and that the registrar came to a wrong conclusion; but he having determined that it did contain the necessary provisions, although it did not, and granted a certificate which he ought not to have granted, the company were, therefore, established in their rights as a corporation, and to decide otherwise would be productive of great inconvenience. He thought that the whole scope and spirit of the Act, and of the general law, should induce them to hold that, until dissolved by some sufficient cause, though the registrar might have been mistaken, the body remains incorporated. The deed was not to be taken as of no effect at all, but that as long as it remained unimpeached, the company presenting it must be taken to be a corporation. This, undoubtedly, is the common sense view of the subject; for as errors and omissions might creep into a deed by accident, which it would be the registrar's duty to have discovered, if he overlooked them, and granted a certificate on which the company proceeded to act, it would be anything but just that they should then be disfranchised through the error of a highly-responsible official. In the present instance it has evidently been an attempt to evade payment of a fair share of the capital, because the company has not been prosperous, and this decision, it is hoped, will induce all who hold shares to pay their calls, that all may bear their portion of the burden. We believe this is the first case of the kind under the Act, and will probably prove of importance.

THE SPANISH QUICKSILVER MINES.—The quicksilver contract, which has been in abeyance for a long time, is again to be submitted to public auction on the 1st December next. Two years since it was taken by the Bank of Fomento, which was subsequently unable to fulfil it, and succeeded in getting it rescinded. It was afterwards put up again, when no bidders came forward at the minimum price fixed by the Government; and since then the quicksilver produced by the Almaden Mines has been forwarded to London, and sold on account of the Government by the houses of Rothschild and Baring, who are stated to have 33,583 quintals in their possession. The contractors are to receive this amount at the same price as they agree to pay for the future proceeds of the mines, which are fixed at 12,500 quintals per annum as a minimum, but have a right at their option to receive 20,000 quintals; and if the mines do not produce so much in any one year, the Government is to make it up from the produce of the succeeding years; the contract to last for four years, commencing on the 1st November, 1849, and terminating on the 31st October, 1853. The 33,583 quintals in London, less any portion that may have been disposed of previous to the taking of the contract, to be paid for in cash, at a month's date, to the President of the Spanish Finance Commission in London, and the future proceeds to be delivered, as usual, at Seville, and paid for in cash the day after the presentation of the receipts in Madrid; the Government to allow 6 per cent. interest upon the money advanced upon the quicksilver in London. The fourth clause states that the 6 per cent. is to be paid in this form:—In the 1st year upon 25,189 quintals; 2d ditto, 16,792; 3d ditto, 8396 quintals; the interest to be paid at the end of each year, being deducted from the amount which the contractor has to pay for the quicksilver received. The other clauses are as usual. In order to bid, 100,000 must be previously deposited in cash in the Bank of San Fernando, on which 6 per cent. will be allowed, or, if preferred, 7,000,000 of Three per Cent. Stock, or 18,000,000 of Four or Five per Cent. Stock, may be deposited.

PRODUCE OF PRECIOUS METALS IN RUSSIA.—The product of the mines in the Ural Mountains, for the first six months of the present year, were 178 pounds 26 zol. of gold; and 4 pounds 8 lbs. 29 zol. of platinum; of which quantities, 74 pounds, 12 lbs. 46 zol. of gold, and 3 zol. of platinum, were for account of the Crown. There was also produced 11 lbs. 12 zol. of iridium in combination with osmium, of which 2 lbs. were for account of the Crown.

AURIFEROUS SANDS OF NEW GRANADA, THE URAL MOUNTAINS, AND CALIFORNIA.—In the *Comptes Rendus*, M. Dufrenoy has a very interesting paper on the auriferous sands of several districts, from which, in these gold-seeking days, much valuable information is to be obtained. The gold sands of New Granada collected in the valley of Rio Dolce, were found to consist of magnetic and titaniferous iron, zircon, and corundum, with 4 per cent. of matter, which is described as "opaque yellow, grey rock, probably quartz, iron pyrites and gold." The sands of the Ural Mountains contain less of the oxides of iron, and their richness in gold is estimated at 0.0025, while the sands of California are found to give a result of 0.0020. M. Dufrenoy states as a general result, obtained from his examination, that the gold sands of California appear to be analogous, as regards richness, to the auriferous diluvium of the Ural Mountains. He gives the following estimate of the probable results to be expected by an individual who devotes himself to gold digging. The products of the Russian mines being published officially, it is found that each workman produces annually about 64*l.* of gold. If from local circumstances, as in California, a man can work only about 200 days in the year, the net daily produce of such a workman would amount to no more than six shillings for each of those days.

IRISH COAL.—Coal of a very superior quality is now being raised from pits adjacent to the Arigna Mine, Roscommon. This fact affords another proof of the mineral riches which lie dormant in this neglected island, which so abundantly possesses within itself all the elements of national prosperity, and yet which misrule has plunged into such a deep abyss of poverty and abasement. Shall it be always so?—*Evening Packet.*

TO THE IRON MANUFACTURERS OF GREAT BRITAIN.

GENTLEMEN,—Your serious attention is requested to the following facts. The total exports of iron and iron goods, for the year ending January 5, 1846, were—

Of bar, rod, hoop, sheet, wire, nails, chains, anchors, cast and wrought goods—333,595 tons. The equivalent in pig-iron, allowing for all the loss and waste of the various processes, would probably be one-third more, or.....Tons 511,450
Of pig-iron itself, the export was.....Tons 176,096
Of hardware and cutlery, the export was 20,614 tons. Probably, the equivalent of this quantity in pig-iron would be double the weight, or.....Tons 41,228
Of machinery and mill work, there was exported a value of 1,583,000*l.* Calculating this at 30*l.* per ton, it would give a weight of 42,100 tons, supposing it would take 30 cwt. of metal to make 30 cwt. of perfect machinery, this value would require of pig-iron a weight of.....Tons 63,150
Of tin plates, the value exported was 462,889*l.* Calculating the average value per box at 30*l.*, this would represent 308,959 boxes. Taking each box to contain 1 cwt. of sheet-iron, they would contain a total of 15,429 tons of sheets. Supposing 14 ton of metal necessary to make 1 ton of perfect sheets, the total pig-iron requisite to make 462,889*l.* value of tin plates will be.....Tons 23,143

The total exports of iron and iron goods will thus require for their production } 815,067
of pig-iron.....Tons

The above are compiled from official returns; probably the loss from waste, &c., in the numerous stages of manufacture may be understated. As, however, the data are given, any error can easily be corrected. The total make of pig iron in Great Britain in 1847 may be estimated as under, or about 2,000,000 tons.

From the above facts, many ironmasters will be surprised to see that the iron trade of Great Britain depends upon foreign countries for its customers, to the extent of nearly one-half of the make.

This extensive export trade is carried on, although England places duties of from 50 to 300 (or more) per cent. on the produce of the countries taking her goods. Are not such fiscal regulations calculated to cripple the amount of our trade to a serious degree? Can any one calculate the increase in our iron exports if all customs duties were abolished? From the universal usefulness of iron, it would be enormous, while the home demand, at the same time, would be vastly increased by the great abundance and cheapness of foreign produce, consequent upon the abolition of custom duties. The annexed list of the rates of duty charged upon some of the principal articles of foreign produce must convince every one that the iron trade (depending, as it does, for the sale of so large a portion of its make upon foreign countries) is most seriously restricted, and possesses nothing like the amount of foreign demand it would have if the present excessive duties were abolished, and a fair tax upon property levied instead. Enormous duties on produce coming into England are, in effect, restrictions on our exports. In the present depressed state of the iron trade, would it not be well to increase our sales abroad? But we cannot expect to do this to any large extent except by adopting direct taxation and economy in government; for remember that the consumption of iron by railways (however important some may consider it) is small, compared with the quantity taken off by the foreign trade.

As the present plan of impost duties offers a great impediment to the full development of the iron trade, by lessening the dealings of its extensive foreign customers; and as, on the well-being of this important manufacture depends the prosperity of large agricultural districts, it is the interest of both masters and men to unite and obtain the complete reform of so injurious a system. An increase of demand to the extent of 200,000 tons would, probably, put every work now in operation into profitable employment. Any plan of raising the price of iron, except through an increase of demand, is not worth consideration. The wonderful activity that would be imparted to all branches of industry by the reform of the present cumbersome system of taxation would be prodigious—in a state of useful activity the taxes of the State would be far less felt—there would be less burthen to bear (for employment would be afforded to thousands now idle and living upon the poor's rate), and there would be more backs to bear the redoubled burthen.

Self-interest, justice, and reason, call upon every one connected with the iron manufacture to declare unanimously in favour of financial reform and direct taxation.

The rates of duty already referred to, and now chargeable, are—

On sugar from 50 to 150 per cent.	
Coffee .. 50 to 150 ..	
Tea .. 50 to 300 ..	
Wine .. 100 to 400 ..	(except a few fancy kinds.)
Tobacco .. 700 to 900 ..	

The money paid by the people of England for these five articles is upwards of 40,000,000*l.* annually. What would be the increase in quantity consumed, if the duty was abolished?

The possession of even the gold of California would be no equivalent to the wealth which an equitable system of direct taxation, with reduced expenditure, would confer on this country; and, in the distribution of that wealth, no trade will benefit more than that large and grievously depressed one in which we are engaged.—AN IRONMASTER: *Liverpool, Nov.*

WHITE'S HYDRO-CARBON GAS.—The *Liverpool Standard* congratulates the patentee of the new gas from water and oils, or resins, which has been tried on a large scale at some new works erected at Southport. Our contemporary states that the gas at first was very dim, but as soon as the air had escaped from the tubes it burned with unclouded brilliancy; also that the town of Belfast is to be lit by this gas, having only waited the result of this experiment.

APPLICATION OF HOT AIR IN THE SMELTING OF IRON.—At the smelting furnace of Ploos, in Wurtemberg, before employing the hot air, the consumption was 100 lbs. (2 cwt.) of ore, 40 cubic feet (4½) of charcoal, and the produce under the old system, was 3900 lbs. (8 tons), while, with the hot air, it is on an average 37,500 lbs. (8½ tons). At Konigsbrunn, in the same kingdom, to obtain 108 lbs (1.17 cwt.) of bar-iron with cold air, it required 20 cubic feet (24½ England, c. f.), and with hot air only 17 cubic feet (20½). The temperature to which the air is raised is, however, much inferior to the lowest standard in this country; for at Ploos, according to Berthier, the temperature of the heated air is only 150° or 200° (302° 392° Fahr.), while at the Clyde Iron-Works, the usual test of the standard temperature is the melting point of lead, or 606 Fahrenheit. This is the lowest point to which the heat is allowed to fall, for it may in general be much higher; yet, even with this disadvantage in Germany, we see that the expenditure of the combustible matter has been reduced one-fourth, with a sensible increase of the product. The effect of the heated air has commonly been attributed to the absence of the cooling power which was exercised by the coal air on its being introduced in contact with the heated contents of the furnace. Berthier denies that this is the mode in which it operates. He thinks that the phenomena which results from the employment of hot air proceed from the greater activity of the combustion in the furnace than when the air has not been previously heated—that is to say, that with the same weight of air there is more oxygen absorbed in the first case than in the second. If this opinion is correct, it follows that less hot air will be required than of cold air for the combustion of an equal quantity of charcoal in the furnace, and that the air which proceeds from the latter being possessed of little oxygen, cannot support combustion. Now, the exhaustion of the oxygen in the air is a point of essential importance, when we wish to obtain a very strong heat, for the azote of the air only assists in producing a loss of the portion of the heat developed by combustion. Hence the less air that is consumed the less does this cause of cooling operate. Besides, the affinity of gas for solid substances is increased by the heating of the gas. It has been said that effects similar to those produced by heated air may be obtained by the employment of cold air, sufficiently compressed, or what would be extremely powerful, the use of hot air compressed to such a degree as experience might point out.—*Patent Journal.*

MACHINERY USED IN THE BRAZILIAN MINES.—At the meeting of the Royal Institution of Cornwall, last week, Mr. W. J. Henwood said that, two or three years since, he laid before the Geological Society an account of the mode of dressing the gold in Brazil (as noticed in the *Journal* at the time), which was not very intelligible without a model of the apparatus used. Having returned, a few days ago, he now availed himself of the first opportunity of showing models of machinery employed in the Brazilian Mines. There was a working model of a stamps, and there was some modification in the mode of dressing which he thought might be usefully introduced into this country. He should be very happy to explain this to any practical man. In the meantime the models might remain at this museum, and be shown at the next meeting of the Geological Society. The other models had no particular interest, only that they exactly represented the originals. They had all been made by black children, who were employed in the mine which he superintended, and perhaps might be indebted to him for putting them in a way to get their livelihood. Mr. Henwood also exhibited some gold mixed with quartz gravel, which was taken out of the gizzard of a duck, in the village where he lived in Brazil.—The president said it was exceedingly curious to find gold in a duck, and he presented the thanks of the society to Mr. Henwood for his very interesting communication.

SOUTH YORKSHIRE, DONCASTER, AND GOOLE RAILWAY.—The portion of this line, extending about nine miles in length, from Doncaster to the Swinton station, on the Midland Railway, was opened for traffic on Saturday. Four trains now run daily each way between Doncaster and Sheffield.

THE WELSH COLLIERY CASE.

The long litigated dispute between the Duke of Beaufort and Mr. Morris was again argued during the past week. On Tuesday, it came before the Vice-Chancellor's Court upon further directions, after a trial at law before Mr. Justice Erle. The case was reported in our columns when it was before the court on the last occasion. The bill was filed by the duke, *quia timet*, to restrain an injury which was apprehended to his colliery, into which, he alleged, the defendant, who was his tenant, had opened a communication for his drift water. The defendant alleged that he had only exercised his rights in the mode in which he had worked his own colliery, and that the communication was not artificial, but of natural formation; and he denied that he was liable for injury against which it was the plaintiff's duty to protect himself. The court retained the bill for a year, giving leave to the parties to try the question hereafter at law.

Mr. W. M. JAMES (with whom was Mr. Dumergue) appeared for the plaintiff. The bill was filed by the plaintiff as owner of coal mines in the basin of the Tawny, to restrain the defendant from making a communication or drift from a colliery, called Cae Grobos, to another colliery, called Pentre, whereby the water from the former colliery would be let into the latter, and from working his coal mines in such a manner as to injure and endanger the plaintiff's mines. The court, at the hearing of the cause, directed the bill to be retained for a year, giving the plaintiff liberty to bring an action. The action had been brought, and a verdict had been found for the defendant. It was now contended that this verdict was not in fact upon the real question at issue in the suit. The bill was filed to restrain a prospective injury which the defendant avowed his intention to commit, and the verdict in trespass of "not guilty" proceeded on the ground that the injury had not actually been done. The plaintiffs now asked for an issue or another trial.

Mr. WALPOLE (with whom was Mr. Raech) contended that the present application was an informal attempt to re-hear the cause.

On Wednesday, the case being called on for further argument, upon the question whether the trial at law had effectively decided the point as to the injury to the duke's mine, Mr. WALPOLE (for the defendant) stated that he understood a petition was about to be presented to the Lord Chancellor for a rehearing, and suggested that it was desirable the present argument should be postponed until the Lord Chancellor had given his decision.

The VICE-CHANCELLOR doubted whether a petition for a re-hearing was necessary, where proceedings had been taken in order to satisfy the conscience of the court. He suggested that the desirable course to be taken by the parties was that which had been taken in a case before himself, of *Dawson v. Paver*, relating to a water-course.

After some discussion by the counsel for the Duke of Beaufort (Mr. James) and Mr. Walpole (for the defendant), it was arranged that the case should stand over, with liberty to the plaintiff to take such proceedings as he might be advised, with a view to further inquiry, during the present term.

WINDING-UP OF JOINT-STOCK COMPANIES.—Amongst the joint-stock companies before the Masters in Chancery during the week, to have their affairs settled and wound up under the provisions of the Act, has been the case of the India and Australia Mail Packet Company, projected with a capital of 100,000*l.*, and the business of which was carried on from 1847, to April, 1849, until the affairs became greatly embarrassed, and it could not be dissolved, the shareholders not having paid up their calls to constitute a legal meeting for the purpose, and which was to be done whenever a loss of 75 per cent. on the capital for the time being was subscribed—the list of contributors, with the exception of some adjourned cases, have been settled. It appears that the deed was signed by shareholders to the extent of 1080 shares; the amount of deposit and calls paid was 3240*l.*; the amount received, 2833*l.*; the amount still due, 907*l.*; the number of shares on which the parliamentary deposit of 5*l.* was paid, but in respect of which the deed was not signed, was 2430; amount paid, 7290*l.*; received, 643*l.*; and still due, 6647*l.* The total number of allottees who paid the parliamentary deposit was 4655. Only 242 shares were taken in Madras, and 81 in Ceylon. The only assets are 397*l.*, under a distringas, and a call has been made on the contributors to pay off outstanding claims, which amount to between 2000*l.* and 3000*l.*

GREAT WESTERN RAILWAY OF BENGAL.—The winding-up of this company's affairs, under the provisions of the Joint-Stock Companies' Act, came on for hearing on Wednesday, before the Master in Chancery, Dowdswell, at his chambers, in Southampton-buildings, Chancery-lane. The petition in support of the proposed process, verified by affidavit from Major-General M'Leod, of Clifton-place, Hyde-park-gardens, the chairman, and Robert Wolesley, of Gaiidhall-chambers, Basinghall-street, the secretary to the company, set forth, that the undertaking was projected and provisionally registered in April, 1845, for carrying out railway communication from the River Hoogly, near Calcutta, to Rajmahal, on the Ganges, with a branch to Burdwan—proposed capital 4,000,000*l.*, in 80,000 shares, of 50*l.* each, deposit 5*l.* per share. Shares were allotted to a large number of persons who paid the deposit, which were applied in the affairs of the company, and in August, 1845, a subscribers' deed was executed, to which Major M'Leod subscribed to the extent of 1000*l.* The directors deferred making any application to Parliament for an Act of Incorporation, not finding it practicable; and on the 30th of July last, at a meeting of the directors, at which the chairman presided, a resolution was passed to the effect that the company be wound up under the provisions of the Joint Stock Companies' Act, and the solicitor was authorised to present a petition to the court, and employ counsel for the purpose. On Wednesday, the various parties were in attendance for the appointment of an official manager to superintend the winding-up of the affairs of the estate. There were four propositions. Messrs. Freshfield, who appeared for a number of shareholders in the East India Railway Company, with which the Great Western of Bengal has been amalgamated, nominated Mr. Coleman, accountant; Mr. Wm. Galsworthy, on behalf of several allottees, proposed Mr. Quilter, accountant. Mr. James, for the petitioners, proposed Mr. J. H. Norris; and Messrs. Fry and Loxley, Mr. Ernest. After a discussion, the master adjourned his decision as to a selection.

JOINT-STOCK LIABILITY.—Few of our non-professional readers (says a correspondent of the *Yorkshire Gazette*) may be aware of the extent to which a husband is liable to pay the calls of a Joint-Stock Company in respect of shares held by the wife. I, therefore, beg to draw the attention of the public to a case which recently came before the Vice-Chancellor, Sir Knight Bruce. One Miss M. Todd happened to be an unfortunate shareholder in the North of England Joint-Stock Bank, at Newcastle-upon-Tyne, which has lately gained considerable notoriety, in consequence of the gross mismanagement and unprecedented recalculation of certain *quondam* directors, and the apathy of shareholders. This lady became entitled to shares in the above undertaking as legatee thereof under a will in 1838. In 1846 she married Mr. John Sadler, about a year after which the bank stopped payment, but he never interfered with the shares by the acceptance of dividends or otherwise; indeed, he studiously avoided doing so, lest he should incur the least liability, being doubtless apprehensive that the concern was rotten at the core. Notwithstanding this, the Vice-Chancellor has decided (in *ex parte* Sadler *re* the North of England Joint-Stock Company, reported in 13 Jurist, 674) that the husband's name was properly included in the list of contributors under "the Joint-Stock Company's Winding-up Act, 1846," and he is thus involuntarily made liable to pay the excessive calls necessarily made by the official managers of the company. This may be said to be taking a wife "for better or worse," as it is so with a vengeance! Such a case as this would, I think, have been a *quintus* for Mrs. Caudle. But, joking apart, the nature and extent of joint-stock liability here assumes a serious aspect; and, if I mistake not, this subject is likely to be numbered amongst the great commercial (if not social) questions of the present day—is this unlimited liability to continue? As the law at present stands I know not in what manner parties concerned, but not beneficially interested, can be protected from process, since it has also been decided (*ex parte* Hall *re* the North of England Joint-Stock Banking Company, 13 Jurist, 691) that an assignment to a trustee on the trusts of a marriage settlement will not "save harmless and indemnified" the trustees, although such trustee was not returned as registered owner to the Stamp-office, and notwithstanding he cautiously acted as agent, and did not comply with the requirements of the company's deeds.

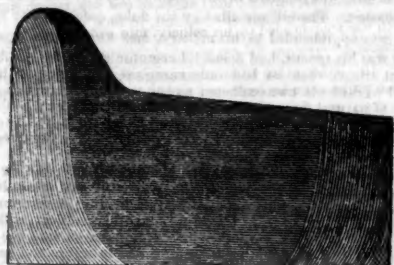
INCREASE OF COAL CONSUMPTION IN LONDON WITHIN ONE HUNDRED YEARS.—The records of the London Custom-house having been destroyed by fire, it is impossible to obtain, with any degree of accuracy, many of the statistical details of trade; but it happens, luckily, that the writer of a history of London, above 100 years ago, obtained from the Custom-house, at that time, an account of seven years' importations of coal into London. The preservation of this account enables us to give the following comparative statement of the importations into London within a period of 100 years:—

YEARS.	TONS.	YEARS.	TONS.
1726	632,470	1826	2,103,498
1727	543,815	1827	1,874,510
1728	710,223	1828	1,893,083
1729	698,744	1829	2,095,420
1730	610,313	1830	2,116,023
1731	633,893	1831	2,053,673
1732	600,737	1832	2,149,820

In 1838 the importation had increased to 2,582,770 tons; in 1845, to 3,461,199 tons; and last year it amounted to 3,418,340 tons. What an increase does this exhibit!—and what a commentary also does it supply to the denunciations of Sir John Evelyn and Sir Kenelm Digby—the one of whom declared that the smoke of London rendered it more like the "suburbs of hell, than an assembly of rational creatures, and the imperial seat of our incomparable monarchy;" and the other, that its destructive properties absolutely rendered the metropolis like unto "Troy sacked by the Greeks," or as if it were visited by the "belchings" of Mount Hecla!—*Gateshead Observer.*

THORNEYCROFT'S PATENT RAILWAY AXLES, RAILS, AND TYRES.

RAILWAY TYRE.—SECTION No. 1, HALF SIZE.



The middle, or wearing, part of this tyre is composed of crystalline charcoal iron, the hardest and soundest iron made. The outward edges are made from a mixture of India charcoal pig with the toughest fibrous iron—the whole made upon an improved principle into one homogenous mass. These charcoal tyres are warranted better and more durable than any tyres made in England.

Price—£15 per ton net at the works, up to 3½ cwt. each.

RAILWAY TYRE.—SECTION No. 2, HALF SIZE.



The middle, or wearing, part of this tyre is composed of the best refined crystalline puddled iron. The outward edges are of the best No. 3 fibrous iron, and put together upon an improved principle into one homogenous mass. These tyres are warranted quite equal to any made in Staffordshire.

Price—£10 10s. per ton net at the works, up to 3½ cwt. each.

BEST STAFFORDSHIRE TYRES—£8 10s. per ton at the works, up to 3 cwt. each.

SECTION OF BRIGGS' PATENT COMPOUND AXLE.

Scale ¼ inch to a foot: parallel axle.



Price—£14 per ton net at the works.

Fig. 2.

SECTION OF BRIGGS' PATENT COMPOUND AXLE.

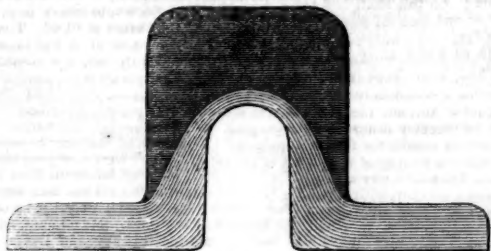
Showing the extent to which the internal bar is welded solid at each end, drawn down in the middle half an inch.



Price—£15 per ton net at the works.

PATENT ANTIMINERAILING CHARCOAL RAIL.—SECTION No. 1, HALF SIZE.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & iron.

Price—£7 10s. per ton net at the works.

PATENT ANTIMINERAILING CHARCOAL RAIL.—SECTION No. 2, HALF SIZE.

Price—£10 per ton net at the works.



Patent Antilaminating Rails, made from the same quality as the best S & iron.

Price—£7 10s. per ton net at the works.

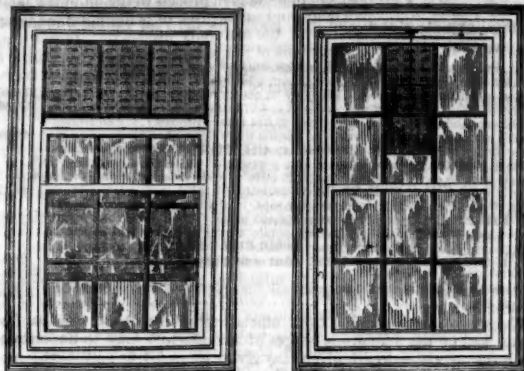
Rails of the same sections are made from puddled iron, quite free from lamina in the wearing part, but soft and less durable than charcoal rails.

This principle is applicable to any kind of rails.

I beg to inform the railway public, that the machinery for testing the strength of axles, and the strength and soundness of the tyres, is now ready; and I offer it to the public without any charge for its use, to try any one's make of axles and tyres they may think proper. A machine has been designed, and is now making by Messrs. Fox, Henderson, and Co., for proving the quality and durability of tyres and rails by actual wear and tear, the same as when at work on a railway, at any speed you like. The name of the designer is, I trust, a sufficient guarantee for its efficiency; in fact, it will be so true a test, that it must prove satisfactory to the most fastidious mind; and, so soon as it is completed, it shall be offered to the public, on the same terms as the testing machine above-mentioned.

Shrubbery Iron-Works, Wolverhampton. G. B. THORNEYCROFT.

LOCHHEAD'S PERFORATED VENTILATING GLASS.



In these days of enlightenment among the great majority of the population, and of a knowledge of even the more abstruse sciences among a large portion of the working and middle classes, it would be superfluous for us to attempt to elucidate the necessity of continuous supplies of pure atmospheric air for the support of health, and even life; yet how comparatively little is this great truth attended to in the construction of a majority of our dwellings, particularly those of the poor, in which, although in our courts and alleys the most pestilential vapours are continually generated in the apartments, where each family at most occupy but one room, there is no remedy but throwing open doors and windows—a practice which will not be followed up in cold and wet weather, and, consequently, pestilence, disease, and death ensue. The insensible permeation of air through wire-gauze, or other woven substance, has long been known, and was happily applied by Davy to the safety-lamp; but it was left to the patentee, Mr. Lochhead, to bring this valuable property of Nature into use for the sanitary purposes of ventilation.

We noticed this beautifully simple arrangement for the ventilation of dwellings, churches, assembly rooms, &c., in the *Mining Journal* of the 18th August last; and as it is now coming into very extensive use in public offices, hotels, &c., we feel much pleasure in again calling attention to the subject. The plan consists merely in perforating plate glass, while hot on the flating table, by passing a second roller, having suitable projections at regular intervals, by which a series of oblong orifices are left in the plate, as will be seen by the accompanying diagrams. A window fitted up with this perforated glass has a most genial effect on the atmosphere within; for, while a copious current of fresh air is continually entering and displacing the vitiated vapour, which escapes through the upper perforations, the former is admitted in such divisional streams as to mix insensibly with the surrounding atmosphere, and prevents those cutting drafts so prolific of colds and rheumatism, and so physically unpleasant to endure. The perforated glass it made of three several qualities—No. 1, polished on both sides; No. 2, polished one side only; No. 3, ground on one side; and, as the perforations are effected with such simplicity and facility, nothing is added to the mere cost of the glass, the only extra expense being the trifling additional fittings. The perforated glass has, for some time, been in use at the Bank of England, Guildhall, Custom House, Royal Chapel, Greenwich Hospital, and other government and corporation establishments, numerous banks, churches, hotels, public and private offices, and the numerous testimonials from parties well able to judge of the effects produced, which have been submitted to us, are quite convincing as to the great importance of the introduction of this material. As an authority, we quote the opinion of Mr. Cockerell, the architect to the Bank of England. He says—"I have great pleasure in saying, that its application in my office, during six months, has been much approved, and that I consider it a very valuable invention for the health of densely occupied offices and apartments. The sub-division of the supply of air, and the facility of modifying, or wholly excluding that supply, by the movement of the upper sash, renders its use very easy and unexceptionable."

RAILWAY LOANS.

To persons desirous of permanently investing in railway property by loans on debentures, and other guaranteed security, the following list of such companies as are open to receive tenders, with the terms of years and rate of interest, will be of service:—

GRANT WESTERN.—Loans on debentures at 4 per cent. for three years, or at 4½ for seven or ten years.

MANCHESTER, SHEFFIELD, AND LINCOLN-HIRE.—Loans on debentures, in sums of not less than 500l., for periods of three or more years (not exceeding seven), at 5 per cent. per annum.

WHITEHAVEN AND FURNESS.—Loans on mortgage or bonds, in such sums as may be agreed on, with interest at the rate of 5 per cent. per annum, and for terms of not less than three or more than seven years.

WATSFORD AND LIVERPOOL.—Loans on debentures, in sums of not less than 200l., at 5 per cent. per annum, and for terms of three, five, or seven years.

LANCASHIRE AND YORKSHIRE.—Loans on mortgage, for three, five, or seven years, at the rate of 4½ per cent. per annum.

NORTH-WESTERN.—Loans on mortgage, in sums of 500l. and upwards, for any period not less than three and not exceeding seven years, at 5 per cent. per annum.—N.B. Loans may be effected for less than 500l., by parties willing to bear the extra cost of the stamp.

CALEDONIAN.—Loans on debentures, in sums not less than 500l.

CHESTER AND HOLHEAD.—Loans on debentures; interest at the rate of 5 per cent. per annum.

DERBY.—Loans on debentures, for a term of three to five years, in sums of not less than 500l.; interest at the rate of 6 per cent. per annum.

YORK AND NORTH MIDLAND.—Loans on debentures, for a term of three to five years, in sums of not less than 1000l., at a rate of interest not exceeding 4½ per cent. per annum.

MIDLAND.—Loans on debentures, three or five years, in sums of 1000l. and upwards, at 4½ per cent. per annum.

CORK AND BANDO.—Loans on mortgage, in sums of not less than 200l., for the term of three to seven years.

NORTH-WESTERN.—Loans on security of the capital stock of the company; interest at the rate of 5 per cent. per annum, in sums of not less than 500l.

CORK, BLACKROCK, AND PASSAGE.—Loans on security of the capital stock of the company, in sums of not less than 200l.; interest at the rate of 5 per cent. per annum.

THE BRITANNIA BRIDGE.—On Saturday, the first of the great tubes of the Britannia-bridge was finally lowered down again by a 5-feet fall on to its permanent bed of plates and rollers, the operation for effecting a junction with the tube on land having occupied about three weeks. The event was cheered by the assembled workmen and spectators, and hailed by the firing of cannon on the Carnarvonshire side of the straits. The hydraulic presses and lifting apparatus are now being removed from the Anglesea to the Carnarvonshire shore in order to raise the next tube as soon as it is floated to the piers, an operation which, weather and tide permitting, will take place on the 3d of next month. The operations connected with this magnificent work have now been carried on for several months both by day and night, under the superintendence of Mr. E. Clarke, the acting engineer; Mr. L. Clarke, the resident engineer; and Messrs. Foster and Wild; and, from the strenuous exertion made, there appears to be little doubt but that the first line of tubes will be opened for traffic on the 1st of March next.

CALEDONIAN, AND EDINBURGH AND GLASGOW LINES.—The Caledonian

Mercury states that various conferences have been held between a deputation of the Edinburgh and Glasgow directors and the committee of investigation lately appointed by the shareholders of the Caledonian Railway, with a view to the amalgamation of these companies. The result is that the above parties have agreed that an amalgamation on fair terms would be mutually beneficial.

In the meantime, and to keep matters open, it has been agreed to give the necessary parliamentary notices for a Bill to sanction the amalgamation. But of course when the terms of the amalgamation are further matured, the shareholders of both companies must be respectively convened to give their opinion on the expediency of this amalgamation, which we need not say, if eventually carried out, of which there is a strong probability, will be an important era in our Scottish railway annals.

M. Pauwels, the machine-maker of Brussels, has just sent from Antwerp to San Francisco, in California, a complete hotel, consisting of forty rooms, with beds, chairs, tables, &c., all in cast-iron. The whole takes to pieces.

EAST AND WEST INDIA DOCKS AND NORTH WESTERN RAILWAY JUNCTION.—There were no fewer than 44 tenders sent in for the formation of this company's line lying between the Lea Cut Canal and Blackwall, and the difference between the highest and lowest tender was no less than 16,000l.

ROYAL BANK OF IRELAND.—At the annual meeting of the proprietors, on Wednesday last, the report stated that the profits for the year were 15,500l., leaving a reserve, after paying dividends to the shareholders, of 5042l.

The reserved fund now amounts to 46,884l. The report was considered satisfactory, especially after a year of such unparalleled commercial and general difficulty.

THE LABOURING POPULATION OF CORNWALL.

Our contemporary, the *Morning Chronicle*, has, for some week's past, been giving its readers an insight into the physical condition of the various classes of the labouring population—not only of the metropolis, but of the several manufacturing and agricultural districts throughout the kingdom. Great credit is due to the proprietors for their spirited exertions, regardless of expense, in obtaining such a mass of evidence of the condition of the labouring and poorer classes; to effect which correctly, and ascertain, from practical inquiry and investigation, the real state of the thousands who toil on from year to year, with barely sufficient sustenance to keep soul and body together, three commissioners are employed, devoting their time to this useful inquiry. From the eighth letter, published on Wednesday last, we find one in a district in which we take great interest—the county of Cornwall—in which he gives the result of his inquiries into the condition of the labourers and their families, both mining and agricultural. He shows that the industry of Cornwall is, from its position and resources, of a varied character; it cannot be said to possess any manufactures, in the ordinary acceptance of the term, but from its peculiar maritime facilities, and also from its being the extreme and the richest part of the metalliferous peninsula which constitutes the south-west portion of England, it sustains, along with its agriculture, a large fishing and mining industry. Having given a short description of the general aspect of the county, he proceeds to examine carefully into the labourers' condition, having generally found, as he proceeded, much concurring testimony as to the superior condition of the farm labourers as compared with other counties. Having fully scrutinized every circumstance, he arrives at the conclusion, that if his money rate of wages were to be taken as the sole standard whereby to judge of his comforts, there can be no doubt but that the condition of the labourer in Cornwall would, in the main, be better than that of the same class in any of the counties visited, and far better than the condition of that class in some of those counties. But there are considerations which enter into the question as regards the Cornish labourer which, when taken into account, detract somewhat from the standard indicated by his mere money rate of wages. Still, after having made allowance for such drawbacks as may exist, he admits that the Cornish farm labourer is, on the whole, better off than his brethren either in Bucks, Oxford, Berks, Wilts, Somerset, or Devon.

The first point to which he directed attention was, as in former cases, to the house accommodation of the labourer; and he discovered that in this, at least, there was no ground for the claim of superiority, in respect of condition, preferred for the labour in Cornwall. As elsewhere, there were around him abundant evidences of very straitened accommodation for a large and increasing population. The few cottages visible were, in all cases, old and mouldy; in many they had greatly progressed on the road to ruin, and in some were utterly dilapidated. Some of the worst specimens of these miserable tenements may be seen along the high road between Torpoint and Liskeard, and, though at great intervals, in the neighbourhood of almost all the parish roads lying north and south of the main highway. This is speaking of the purely agricultural portions of Cornwall; and he asserts, without hesitation, that the accommodation provided for the labourer in these districts is, on the average, little, if anything, better than that at his disposal in the adjoining counties.

In other parts of the county he found far better house accommodation. These, however, were invariably in districts where not only had mining been carried on, but where mines had been long established, and he found some of the miners forming a very striking exception to the rest of the population. The following is a description of a new village sprung up through mining operations being commenced in the neighbourhood:—

About a mile from Liskeard, and on the road to the Caradon Mines, is the village of Trevecca. This is but of yesterday's date, as well by the name of the houses as by the fresh colour of the material used in their construction. It consists of 24 houses in 12 detached groups—each group consisting of two residences. The houses, which are all on one side of the road, stand back a little way from the thoroughfare—each having a small patch of ground in front, and about the eighth of an acre attached to it behind. The cottages are two stories high, counting the ground floor as a story; the building material is stone, and the roofs are covered with slate. Altogether the houses look palatial, as compared with the huts of the older villages, or such as are scattered over the face of the county; nor is their internal accommodation inferior to their external appearance. The two end houses have each five rooms; all the rest have four—two below and two above. The lower rooms are well plastered; and although the beams which support the floor above are exposed, they are clean, with a space of from 8 to 9 feet between the two floors. They are also well lighted—the windows being large, and framed in the ordinary manner. Instead of being occupied by the lenden diamond-paned frames so common in the older cottages. The staircase to the bed-rooms ascends from the inner room—having a good balustrade, being commodious, and of easy ascent. The bed-rooms are large, airy, and well lighted—the walls being plastered both at the sides and overhead. Between each house and the back garden is a small paved yard, with accommodation for washing and other conveniences, which should attend every household. At the extremity of the garden, far removed from the house, is a pig-stye for such as may choose to keep a pig. When I visited the village, I found but few doing so, owing to the scarcity and dearth of potatoes—barley being expensive feeding for a pig. So clean, cheerful, and comfortable a scene at once surprised and delighted me; for it was in perfect contrast with the wretched, unwholesome, and straitened accommodation which I had elsewhere but too generally witnessed. On inquiring into the origin of so unexpected a scene, I found that it had been called into existence by the extraordinary demand which had so suddenly arisen in the neighbourhood for cottages. The property on which the village stands belonged to the daughter of one of the most respectable and influential citizens of Liskeard. She projected and executed the undertaking, which has been advantageous to all parties. Some of the tenants are themselves miners, others are not; but all are industrious and sober. Several of them are agricultural labourers; and all of them, before moving into their present abodes, knew what it was to tenant the wretched hovels of the peasantry. Whatever influence the superior style of their domicile may have had upon them, certain it is that, as regards intelligence and their personal habits, they are greatly superior to their class elsewhere. Several of them have told me that they would not return to the holes which they formerly occupied, if they were given them rent free. Their altered circumstances have superinduced an elevation of tone and manner, which it was pleasant to witness, and which were fraught with hope as regards the capacity for improvement of the labouring classes. The snugness of the dwellings, the tidiness of the women, and the cleanliness of the children, all betokened that one of the greatest barriers in the way of improved habits amongst the peasantry is the wretched condition of their dwellings.

The writer states, that the average rate of wages paid to the agricultural labourer may be taken at 9s. per week; this, however, is but the money rate, and by no means indicates the real extent of his command of the comforts of life. With respect to the really mining population, the same extent of information is not afforded; probably, this may form matter for another communication. Happily we know, that bad as things are, the miner in constant employment is even better off than the agricultural labourer, some of whom he found in the rich district around Truro, obtaining a regular pay of 10s. per week, with, however, a considerable drawback in the shape of rent, arising from the scarcity of house accommodation. Upon the whole, he has come to the conclusion, that while house accommodation of the labourer in Cornwall is little, if any, better than in the neighbouring counties, his condition otherwise is better, for after making all the deductions necessary from his nominally higher rate of wages, there are circumstances connected with his case, such as a continuous and cheap supply of fish, which place him in a somewhat better position, as regards diet at least, than his brethren in many other counties.

SOUTH BASSET—GRATIFYING TRIBUTE TO THE MINERS.—The continued success and brilliant prospects of this mine rendering necessary that several shafts should be sunk to deeper levels, for more expeditious working, it followed as a matter of course that the good old custom of naming them, with proper sponsors, and the attendant ceremonies, should be observed. The amount subscribed, in this instance, by the generous and fortunate sponsors, amounted to such a handsome sum, that it induced them to suggest (and carry out their beneficent suggestion in the fullest manner possible) that the entertainment should include every man, boy, and maiden working in the mine. Saturday last, being the day after the pay and setting, was fixed upon. C. F. Giesler, Esq., one of the liberal sponsors, came purposely from London to gratify himself with the pleasure of beholding good old English hospitality so worthily bestowed upon Cornish ground to so many of its subterranean labourers. Temporary apparatus for cooking, dining tables, &c., were speedily constructed, large joints of prime beef and mutton were placed smoking upon the festive board, of which 280 workmen partook, each having, in addition, one quart of beer and a glass of rum; the whole being most ably superintended by William Richards, Esq., of Bank-house, and the managing agents, Capt. Pope, Middleton, and Teague, assisted by the Revs. J. W. Hawkesley and — Boyd, Drs. Richards, Michell, Titus Deville, and numerous attendants, so that everything went off to the perfect satisfaction of the thousands assembled to witness this act of generous benevolence. Cheers became more plentiful than chairs; three were given for each member of the Royal family; three for Lady Bassett, and numerous other parties, followed. Then came "the ladies, with nine times nine." At 6 o'clock, above 120 of the boys and maidens were regaled with tea and cake, after which nearly 100 ladies and gentlemen sat down to an excellent dinner in the noble dining-room of the account-house; the agents and their numerous friends occupying the captain's room for a like purpose.—*Corn. Gaz.*

THAMES TUNNEL COMPANY.—The number of passengers who passed through the Tunnel in the week ending Nov. 10, was—No. of passengers, 14,302.—Amount of money, £29 11s. 10d.

Original Correspondence.

SAFETY FUSE.

SIR.—A fortnight since, having addressed a few remarks through your columns, to mine agents and superintendents of mines, respecting a material—the safety fuse—which is so extensively used in all our mines, I will, with your concurrence, again draw attention to the same subject, for it is one of the greatest importance to the working miner, as it, in truth, comprises much of the personal safety of the latter in his daily avocation; and I am sure there are no mining agents but would consider it a duty incumbent on them to secure the well-being of the labouring miner. With this, I would entreat the agents of mines to exercise their best judgment in the selection of that material, in the use of which there rested the least possible chance of the occurrence of accident; and this might, doubtless, be effected by a little caution, in simply adopting such 'fuse' as meets the general approval of the miner—for whose opinion, I would ask, is entitled to the same attention as that of the working miner? for in the use of a properly constructed safety fuse, roots, in a great measure, his personal safety, and, perchance, the ultimate misery of a helpless family.

Now, these are considerations which, if neglected, no delusive object of economy can, under any pretext whatever, sanctify—and few there would be who would not consider their conduct highly reprehensible where, having the direction of the affairs of a mine, allowed the introduction of a dangerous material. With much sorrow, the writer asserts that many deplorable accidents have come under his immediate observation, in mines where a defective 'safety fuse' has been in use. It is not my place here to point out whose manufacture of the 'fuse' is most desirable, or whose, in the use of which, there is danger attached, but to make it evident that there has been of late a neglect, or carelessness, or inability, on the part of the manufacturers; for the writer has been informed, on the unquestioned authority of a mine surgeon, in very extensive practice, that "the increase of accidents from premature explosions, since the expiration of certain manufacturers' patent, has been, at least, 7 per cent.," and these alone have occurred under this surgeon's individual notice—therefore, there must be some reasonable grounds of complaint somewhere; and, I think you will agree with me, that the sooner they can be got rid of the better. In conclusion, let me beg of every friend of the working miner to lend a hand in removing any, and every, such cause of complaint.

Redruth, Nov. 13.

SPECTATOR.

COPPER SHEATHING.

SIR.—As no one seems disposed to offer any further observations on the management of ores, not even "T. H. S.," from whom we were led to expect a share in the discussion; nor GERMANICUS, beyond the accordance, in his last, with Mr. Williams's opinion, before quoted, respecting the use of muckley ores; and as nothing satisfactory occurs to me to add upon this branch of our inquiry, until answered on the present influential constituents of the different foreign ores, especially those containing large proportions of oxide, carbonates, muriatic, and other salts, unless A ROASTER MAN has any further inquiries, or observations, to make on this department, we may as well proceed with the questions on calcination, hoping they may give occasion to revert to the ores, and throw more light on their treatment, as connected with the first calcination. And let me here, in reference to his last letter, assure him that he may always reckon upon the most direct and explicit answers within my own knowledge, or trustworthy information. If I see reason to object to a question, it shall be done openly and plainly; no subterfuges or evasions, but speaking decidedly only in cases of certainty, and doubtfully in cases of opinion; nor yet filling your columns with details, unless requested so to do, as these letters are intended, not for the general reader, but for working men, as well, or better, acquainted with the practical details than the writer.

Nov. 13.

J. PRIDEAUX.

THE WINDOW DUTY.

SIR.—It seems to me most inexplicable, that amidst all the suggestions and recommendations of Sanitary Commissions and the Board of Health, the most important of all—viz.: the wicked and most impious tax, that on the light of Heaven—has never once been mooted. A more unjust and oppressive impost than that of window duty is altogether inconceivable. In a sanitary point of view, light is as indispensable as the air we breathe; it is emphatically the vital principle of the atmosphere, and its *vie mediæ*, when it is languid or morbidly affected. Surely we might reasonably expect, at least, a vast modification of this infamous incubus on the boon of health and enjoyment, and some common-sense definition of the term "window." Has Cerberus received a sop, that these so-called Sanitary Commissioners should be so silent?

Portland-place, Hull, Nov. 13.

J. MURRAY.

INCOMBUSTIBLE FABRIC.

SIR.—Sir David Brewster, the other day, introduced to the notice of the British Association a specimen of incombustible cloth, manufactured at Dundee, the material employed to render it so being phosphate of magnesia. All the phosphates have this property more or less, and in the first edition of my work *On Flame and Safety-Lamps* (1833), I referred to this fact in the case of phosphate of ammonia. Silicate of potassa has a similar character.—J. MURRAY: Portland-place, Hull, Nov. 13.

THE "TEMPERING OF CLAY" AND BRICKMAKING.

SIR.—I observe a patent granted for "preparing clay." I know not exactly to what this refers; but a subject more important to the community cannot be easily conceived of. The evil, however, which I have already pointed out in a former communication to the *Mining Journal*, is overlooked and left intact—namely: the particles and fragments of calcareous matter, interspersed among the clay employed for making bricks. The carbonate of lime becomes converted into quicklime by the heat of the furnace, and the brick bursts on the first accession of water. Besides, bricks are porous, and quickly absorb moisture; and when this is followed by frost, the expansion of the water in being frozen will rend the brick as if by the explosive force of gunpowder.

There is, therefore, nothing occult or mysterious in the fall of the arches of viaducts or aqueducts during the prevalence of rain, or rain immediately succeeded by frost. The recent fall of, I believe, 13 brick arches in Lancashire, is no mystery. I know an instance of upwards of 100,000 bricks reduced to dust by a single night's frost, being preceded by rain.

Brickwork should, therefore, be assiduously protected from wet; above all, in the case of the viaducts of railways. The exposed surface should be brushed over with oil or coal-tar, and the upper layers of brick be cased with asphalt, so as to exclude the wet which would permeate from above.

Portland-place, Hull, Nov. 13.

J. MURRAY.

PHILLIPS'S FIRE EXTINGUISHER.

SIR.—You will see, by the annexed extract from a work of mine (1831), that Mr. Phillips, in his "fire annihilator," has fished "a leaf out of my book," and appropriated, in his patented invention, what I had already applied, giving my process a new direction, and employing it to a different purpose.—J. MURRAY: Portland-place, Hull, Nov. 14.

INVENTION FOR SAVING FROM SHIPWRECK.—(Published in 1831).—The arrangement is supplied with an appendage for illuminating the flight of the arrow and the scene of shipwreck. It consists simply of a cylindrical sheath, or socket, containing the materials of illumination, consisting of a mixture of finely-powdered chloride of potassa and gunpowder, intimately blended together. A spindle, supplied externally with a flat head, enters by its extreme end into a miniature phial, supplied with sulphuric acid, sealed with a drop of bees-wax. As soon as the arrow leaves the gun, the re-action of the air on the head of the spindle drives inward the plug of wax, and liberates the acid, which instantly kindles the mixture, the brilliant flame immediately fills the globular cage of wire-gauze which surrounds it, and the intensity of the light is rendered still more dazzling and splendid by adding a bit of phosphorus to the inflammable powder. This part of the apparatus is made altogether independent of the arrow, and may be easily attached when circumstances require it, as when the darkness of the night renders it imperative. The combustion which forms the source of the illumination cannot be quenched, either by the sea-spray, or a deluge of rain, the medium of support being supplied from itself, altogether independent of the external atmosphere, however charged with watery vapour or rain, and the combustion is too force to be at all affected by the wind, even at its maximum degree of strength.—Extract from Introduction, p. 12.

BREAD AND WHEATEN FLOUR.

SIR.—I see the lecturer at the Polytechnic Institution has taken for his subject our daily bread. The adulterations to which it is sometimes subjected are many and various—*inter alia*, alum and chalk, gypsum and pipe-clay. In some cases we have ourselves to blame for these dangerous freaks. Bread must be of snowy whiteness—whiter than the material can make it. Some adjunct, therefore, is necessary to minister to a morbid taste and depraved appetite, and the very essence of nutrition is sacrificed to the shrine of a blanched surface. The eye is the umpire that must decide, though health should be the forfeit; and then we must have "unfermented bread," as if the very word *fermentation* were some scare-crow—

a bug-bear to frighten us out of our senses. That the changes superinduced in bread by the act of fermentation are otherwise than wholesome I have yet to learn; while by the new-fangled process we abandon the *only test* of the quality of wheaten flour, and run the risk of being poisoned, arsenic being generally found in one of the materials used—viz.: muriatic acid. I have analysed several specimens of the wheaten flour of this season, and am happy to announce that they were found to be unusually rich in gluten—a highly organised substance, and eminently nutritious, having protein for its base.—J. MURRAY: Portland-place, Hull, Nov. 13.

LECTURE ON THE CHEMISTRY OF FOOD.

SIR.—I perceived, in your last week's Journal, a notice of a lecture delivered by Mr. Ashley on the chemistry of food, referring to bread in particular, showing how to detect impurities in it; and, amongst other things, he intimated that chalk and gypsum are matters common in bread, known as "seconds" and "thirds." There may be some of the public, and I believe many, who really think that such things as chalk and plaster of Paris (as gypsum really is) are mixed in the flour to make into bread; but in hazarding such an assertion publicly, the lecturer ought to be fully acquainted with the opposite nature of chalk and wheaten flour, and also with the process of making bread; had he been so, I am quite certain he never would have made such an observation. I am a little acquainted with the making of both flour and bread, and am sure there is not one ounce of either chalk, or gypsum, used in making bread within 20 miles of the Royal Exchange in any week; and if ever so small a quantity of either got in by accident, it would be detected instantly it was eaten by the teeth; and also to manufacture the article in any way to soften it, would cost more than the flour itself does.

This lecturer should at least know, that to make good bread, it requires to rise both in dough and also when in the oven; but with either of those ingredients in it, it would be impossible for it to rise at all—the only object I consider Mr. Ashley could have had, was to make his audience think him very clever; but knowing, as I do, this chalk and gypsum story to be so directly false, I cannot believe that his lectures can ever be of any value, either to the public or to the institution at which they are delivered, besides the fact of his blasting the characters of a large number of tradesmen who do not deserve it. There is no one article of these earthy natures that can be used in bread, nor do I believe any one of them are used for that purpose in England. I trust you will give this a place in your next, and if this lecturer feels himself right, let him try the experiment by personal application, and then he will find his error.

Southwark, 11th mo. 12.

H. SMITH.

ROTARY ENGINES.

SIR.—I had not until to-day observed the article requesting my views on a question put in this Journal of Oct. 27, which are as follows:—20 + 1 = 21 lbs. the pressure on a square inch of the piston, when that of the atmosphere is 15 lbs. on 1 square inch—taking from which about one-fourth as expended by the air-pump (= 5 lbs.), one-third for friction (= 7 lbs.), and 1 lb. for the deficit of vacuum in the condenser, there remains $\frac{1}{4}$ lbs. for the beneficial or actual work per square inch of the steam piston, which agrees with the case given by Mr. Mushet. Of the annihilation of power at the ending of and recommencing each stroke I have no knowledge, excepting that in the reciprocating engine provided with a fly-wheel, whatever power of steam is expended in producing motion in any part of the engine, the motion so produced will return an equivalent effect by the time it is destroyed, the friction and resistance of the air excepted.

Upper Fenton-street, Nov. 10.

JOHN CURR.

ROTARY ENGINES—AIR ENGINES.

SIR.—You will oblige me by the privilege of putting a question to Mr. David Mushet relative to his communication in the *Mining Journal* for Nov. 10, on the subject of rotary air-engines. Query—Does Mr. Mushet mean to assert that a steam piston, working a blowing piston at a blast pressure of 2½ lbs. per square inch, equivalent to 5 in. column of Hg. with cold-blast, is competent, when the blast is heated to 600° Fahr., to support a column of Hg. on the blast piston of 7½ inches, equivalent to 37½ lbs. per square inch? Or, secondly, does he mean that, whilst the resistance in the blowing cylinder remains the same with both descriptions of blast, the aerial expansion at the tuyères subverts a pressure of two augmented to three? If Mr. Mushet's argument be just, and his fact a fact, as above alluded to, how comes it that betwixt the use of hot and cold-blast, with the same blowing-engine, such an enormous diminution of blast obtains to make a ton of iron, when it is heated by transmission through hot pipes? That heated air is more elastic—i. e., compressible—than cold air every one will admit; but, then, in such cases, as I opine, elasticity, or which is the same thing, *springiness*, stands to density as speed to power, and both conditions capable of equal resistances, degree for degree. As facts are the germs of our knowledge, we ought to be extremely cautious how we admit mere assumptions to the rank of these scientific truths, the deductions from which, instead of truth, may induce dangerous errors. As I have some notion that the forward motion of heated air in hot pipes, impelled to motion by a *vis-a-tergo*, may tend to press more "in front" than "a-tergo," I should like to have some of Mr. Mushet's actual observations on this important topic.

November 12.

WM. RADLEY, Ch. E.

IRON AND CARBON.

SIR.—It is a pity Mr. Leighton's ability should be perseveringly diverted to maintain his strange theory on the constitution of bar-iron. I will say nothing of the physical impossibility of a fluid of the specific gravity of cinder remaining in the interstices of welding-iron, under a pressure of sometimes 100 tons; but let him test his theory by examination. Apply the highest microscope to the bright fibres of finished iron torn asunder; every lamina of the piles can be traced on the outer surface of a bolt, well twisted and rent, affording a plain guide where to look amongst the fibres for his cement; or submit the different Nos. of bar-iron to chemical analysis. It is evident the greatest proportion of oxide ought to be found in the most finished bar, which has been the most often piled. What paradox can be greater than to assert the perfection of a metal depends on its imperfection? In the case of tin plates, which he adduces, it is evident, if the plate were in alternate layers of such a different tensile and elastic power as cold iron and cold cinder, the bending would separate it into a multitude of arcs, of different curvature. A sheet of worked tin plate would become a film of eccentric and concentric bubbles; working bars under vertical blows would be converted to something like wire besoms. Where is the cinder cement to be detected in best boiler plate, which cuts like lead before the chisel? In fact, as no reason can be assigned why the cinder should attach itself to the iron in one direction and not in another, it must enclose the particles from the first puddled ball, and be elongated in fibres along with the iron in subsequent rolling; so that a longitudinal section of a finished bar would present, in each fibre, an inch or two of iron, and then an inch or two of cinder, accomplishing the very perfection of continuity. Were studied ingenuity to set about devising a theory at variance with fact, it could never exceed this, which it is surprising any one who has attended to the properties or manufacture of iron can advance. It is much to be regretted that such notions should appear where there is any scientific pretension. The effect is to set men of practice against the very name of science, and to deprive both of the advantages legitimately to be derived from their union.—DAVID MUSHET: Nov. 13.

PATENT LAW REFORM.

SIR.—I regret Mr. Campin should find an apathy on the part of inventors towards realising those improvements which their petition, jointly with his exertions, appear to have placed within reach. There is no question the proposed change of permitting a patent right to date from the time of application, on payment of a small preliminary sum, will be a vast step for the better. Many inventions cannot safely be put to the test of practice until after the patent is sealed, so that it can only undergo the test required to prove its value in the short interval elapsing before the date of specifying. If it is found in this period to be inapplicable, from reasons arising on the large scale, the whole outlay is at once sunk; but by the small preliminary payment, the inventor will be enabled to ascertain if his project is deserving of the whole outlay. If it is not, he drops it at a small loss, or he has ascertained what modifications are required, and proceeds, *de novo*, at a small additional cost. In a more fiscal view, it is so well established, that small dues produce large revenue, that we cannot doubt the change would increase receipts as a Government tax. No doubt applications would hereby be facilitated for numerous ill-digested and futile schemes; but I see no serious evil in this to weigh at all against the facility afforded for perfecting schemes of genuine utility.

I think I am inclined to value more highly than Mr. Campin the effect

of reducing the whole fees to 100l. It is true this is also a great sum to a poor inventor, but it can be found with much greater ease than the mere ratio between the amount and that of the present charge. There is a manifest injustice in the separate charges now made for the three kingdoms. They are a relic of separate institutions and interest, which have long since been united; and as the causes of the separation have ceased, it is a gross abuse to retain their effects, and, in fact, an absurdity, utterly at variance with the national position; and, had as the principle is, its application is worse. If 100l. is a fair charge for the advantage of a patent in England, 10l. is far more than an average proportion due to the advantage an Irish patent can be expected to yield. For Scotland 30l., perhaps, might be taken as a fair ratio; but instead of this the enormous sum of 135l., or thereabouts, is demanded for Ireland—not for any substantial good, but merely as an accidental defence against piratical dealings. The charge for Scotland is not so grossly exorbitant, but it is very nearly as much as the main cost. I cannot but think the basing down these extravagancies to a single charge of 100l. is a proposition well deserving support.

Mr. Campin regrets he sees no immediate prospect of exchanging the present system of payment for the small annual charge established abroad; but I doubt if our system in this point is really so objectionable as may at first sight appear. The great subdivision of foreign capital, and the constant intervention of Government influence in all matters, public or domestic, renders the foreign plan more congenial to their wants and their habits. Such payment as we have to make would be a total prohibition to the foreigner, so that they have a plan dictated by the necessities of their condition. If the first charge were fixed at a reasonable rate in this country, it, perhaps, might continue as a more suitable arrangement to us than a system of tax gathering to call in the yearly dues. I think Englishmen in general would prefer to buy their patent, and have done with it, rather than to be looked up periodically by an *employé*; the patent right is at least secured. It often happens that, after a long unproductive interval, a patent becomes valuable; and if in such an unpropitious or necessitous period the yearly payment had not been kept up, the right would have lapsed, inflicting hardship, in a different form, upon a poor inventor.

There are two more divisions of the subject—the first obtaining the patent right, the second preserving it. It would be a vast step if more stability could be given to this sort of property, and the costs lessened of defending it. I shall look with interest for what Mr. Campin promises on these heads. A patent of uncertain value may pass undisturbed; but in proportion to its originality and undoubted merit, so are the difficulties and dangers it is certain to encounter. It is true much of this risk is inherent in the subject, for if old recognised rights are liable to contest, much more so must be a right so novel and undefined as an original invention. I fear this is a hard point for improvement. The legislative dexterity now arrived at in framing unintelligible Acts, which require to be amended again and again by enactments equally unintelligible, is far from encouraging. There is a sad want of comprehensive mind to digest a subject to its main bearings, and to compress a multitude of petty expedients with the vigorous grasp of design.—DAVID MUSHET: November 13.

MOTIVE-POWER.

SIR.—I perceive that Mr. Isham Baggs took out a patent on 9th Feb., 1842, for improvements in obtaining motive-power, by means of carbonic acid, &c. I beg to inquire if the above Mr. Baggs is the same gentleman whose letters have recently appeared in your valuable Journal; if so, I think I can draw his attention to a subject which is calculated to effect great economy in the above invention. The subject matter appeared in the *Mining Journal* some time ago, but I do not apprehend it would be noticed by Mr. Baggs.—AN OLD SUBSCRIBER: City, Nov. 14.

HAIK'S IMPROVED APPARATUS FOR THE TRANSMISSION OF AIR AND GASES.—We have inspected, in the course of the week, an apparatus for exhausting vitiated air from any situation where it may have become accumulated, and thus causing a pure current to supply its place, such as in ships, hospitals, churches, sewers, vaults, wells, brewers' vats, and under numerous other circumstances which will readily occur to the reader. It is constructed somewhat on the principle of the common fan, but without band of any description, or cog-wheels—thus rendering it exceedingly easy to work, with a minimum of friction, very durable, and so portable that it can be made fit for use in a few minutes, and as easily packed away when done with. It consists of an iron frame, through the upper portion of which runs a shaft, turned by a winch-handle, or by other motive-power, if required; on this shaft is fixed a disc, having a rebate, or flat ring, projecting on one side all round its periphery. On the same shaft which carries the fan, and which is placed below the one first named, is fastened a small drum, which works on the inside of the ring, on the disc before mentioned, and, being kept in close contact with it, answers all the purposes of a belt, with a vast deal less friction, and consequent saving of power—it revolving itself, in fact, into a friction wheel, as well as a transmitter of force. It may be worked either as an exhauster or as a bellows, or propeller of air, by which means its uses may be very greatly extended. As a ventilator, we have no doubt it must be very effective, either for small or large chambers, or large buildings, such as churches, assembly rooms, &c.; and, on a larger scale, it appears to us, the principle might be advantageously applied to mines, under many circumstances where, without some such artificial means to cause currents of air, the more distant workings are generally and often unapproachable, until other communications are made by winzes. As bellows, for the use of engineers, smiths, chemists, &c., the apparatus will prove of much advantage, the blast being powerful and continuous, and producing on iron a welding heat more powerful than can be obtained by the common forge. They are manufactured, and kept in stock, of six different sizes, from 20 to 36 inches high, capable of exhausting from 2000 to 6000 cubic feet per hour, and, of course, of driving a proportionate quantity when used as bellows.

RAILWAY INJURIES.—For some time an idea has prevailed, either that railway collisions are effectually guarded against, or that their occurrence is withheld from the public. We cannot believe it to be possible that any local journalist would suppress the publication of whatever he was informed, within the sphere of his labours; although we can as easily understand how much, and why, railway directors may desire to have accidents happening upon their lines hushed up as quietly as possible. However, the very severe injuries inflicted upon so many persons, by the accident on the Blackwall Railway, on Wednesday last, will naturally excite considerable attention. We thus particularly notice it, because, as we learn from the London Journals, the single journey tickets of the Railway Passengers' Assurance Company are not issuable on that line; nor on several other short lines, the Greenwich and West Kent, for instance. The reason assigned is, that the directors of those lines could not see the utility of their use where the transit of passengers is accomplished in such short periods; forgetting that the concurrent increase of trips is more than an equivalent in the production of risk. They must be now satisfied of their error, or soon will be, when the "compensation charges" flow in upon them. Nor will passengers be less speedily disabused of the same mistake. All considerations apart, as between them and the railway directors, who among the fractured, wounded, or maimed ones, who barely escaped death on the occasion mentioned, but would now feel some consolation in having afforded to them the surgical and pecuniary aid of the Assurance Company, in return for the pence laid out in the purchase of the requisite tickets?—*Liverpool Courier*. [Our contemporary is quite right. The maimed first-class passengers would die have been entitled, if insured, to ample compensation; and should they die in consequence, their relatives would be entitled to 1000l. for 3d.; the second-class to 500l. for 2d.; and the third-class 200l. for 1d. Or any holder of a periodical ticket, if in either class, to within 1000l. Then which nothing can better illustrate the utility of the Railway Passengers Assurance Company.—Ed., *Mining Journal*.]

MINERAL RESOURCES OF KERRY.—The *Traveller* says:—"We have frequently directed attention to the mineral resources of Kerry, and those in the localities never made the subject of mining operations. We have, then, much satisfaction in stating that a practical gentleman connected with a highly respectable and wealthy company in England, has been exploring the different baronies of our county, within the last three weeks, aided in his researches by Mr. C. O'Connor, C.E., whose local knowledge has helped to considerably expedite his labours. The result, we are in a position to say, has been most satisfactory. Coal, culm, copper, and lead ores have exhibited themselves in various quarters where the pick-axe of the miner never before delved, presenting all the indices of a remunerative return. For obvious reasons, details are not at present given; but we trust we shall shortly see operations commenced, which, while tending to create wealth for the projectors, will give employment, on a large scale, to the starving, yet peaceable population of our country."

THE FOLLOWING EXTRAORDINARY CURSE OF A SWOLLEN LEG BY HOLLOWAY'S PILLS AND OINTMENT is published in the *Adelaide Observer*, South Australia:—George Munro, a settler in the colony, had been suffering for many months with a swollen leg, and the pain was so intense as to deprive him of sleep. He was recommended to try Holloway's Ointment and Pills, and by using them as directed, for about a fortnight, a cure was so far effected as to permit him to walk to Adelaide, a distance of 20 miles, to give this statement to the editor of this Journal, for the information and benefit of his fellow-creatures.—Sold by all vendors of medicines, and at Geo. Holloway's Establishment, 244, Strand, London.

AUDIT OF RAILWAY ACCOUNTS.

Yesterday, in pursuance of the resolutions passed at the meeting of the representatives of railway companies on the 8th inst., communications in conformity with the instructions of the committee of railway chairmen appointed to prepare a bill for Parliament, were transmitted to the secretary of every railway company in the kingdom, calling their attention to the resolutions passed at the meeting, and to the suggested provisions of the proposed bill for the more efficient audit of railway accounts. Particular attention is called to the fourth resolution, recommending that these suggestions should be circulated among the shareholders, as the parties most concerned in the efficiency of the audit, with a view to obtain their opinions on the outline of the bill. Accompanying is a form of circular for communicating the suggestions to the shareholders, the result to be reported in the following form:—Number approving, number of shares; number disapproving, number of shares; special answers, number of shares. The committee express themselves reluctant to impose this trouble, but state that the particular board of directors and secretary to whom the communication is addressed will feel that it is necessary, once for all, to establish a system of audit, not only satisfactory, but which Parliament may be assured is satisfactory to shareholders. The circular proposed for adoption by the various companies in taking the sense of the shareholders, to be signed by the respective chairmen and secretaries, sets forth that it is wished the opinion of all shareholders should be obtained concerning the proposed bill. If they disapprove of the suggestions, they are requested to intimate it, either with or without their reasons for it. If, on the other hand, they are not heard from, it is to be assumed that they approve the proposed outline of the bill, as embodied in the resolutions of the delegate meeting of directors on the 8th inst.

Yesterday also the directors of the London and North-Western Railway Company issued official communications to all their shareholders on the subject, signed by Mr. Stewart (the secretary), which, in the form of interrogatory, differ from the preceding one drawn out for general adoption. The communication commences by advertising to the resolutions of the proprietors passed at their special general meeting on the 17th July last, when it was resolved that the proposed compulsory interference of Government with the accounts and affairs of railway companies would be highly objectionable, both on public and private grounds, and that for these reasons the directors be instructed to oppose the bill; but that, under existing circumstances, it was expedient that it should be made compulsory on the auditors of railway accounts on all occasions to call in to their assistance some known public accountant, but without the interference of Government. Accompanying the communication are the resolutions passed at the meeting of railway directors on the 8th, coupled with a request that the proprietors will transmit their approval, or otherwise, of the suggestions for the proposed bill for the information and guidance of the directors in the course they may find it necessary to pursue with reference to the question of audit by the proprietors, and of Government interference in the conduct and management of railway property. The communication concludes by impressing on the proprietors the desirableness of an immediate and serious consideration of the matter, and calls upon them to assist in forming such a measure as will secure an efficient audit vested in themselves, and so avoid the permanent evils to be apprehended from the interference of Government in commercial affairs. Questions upon the following points are then put to the proprietors for reply:—First, as to whether they approve or otherwise of the suggestions generally, and, if specially, whether it should be compulsory on the auditors to be appointed by the proprietors to employ a known public accountant? Then, upon the question whether the audit of the account should be continuous; if the half-yearly financial statement of all the companies should be made out as nearly as may be in the form prescribed, &c.; whether it shall be competent for a minority to appoint special auditors and accountants as suggested. The directors of the London and North-Western Railway have informed their proprietors, simultaneously with the transmission of the suggestions, that an opportunity will be afforded them at the special general meeting on Wednesday, the 28th instant, for collecting the views of their proprietors on the subject.

RAILWAY RECEIPTS.—The following increase has taken place in railway receipts during the past week, as compared with the traffic of the corresponding period of last year:—

Lancaster and Carlisle.....	£295
Eastern Union.....	297
Edinburgh, Perth, and Dundee.....	371
Glasgow, Paisley, and Greenock.....	319
Eastern Counties.....	436
Midland.....	858
North British.....	896
London, Brighton, and South Coast.....	1002
Lancashire and Yorkshire.....	1458
London and North-Western.....	2034

The London and North-Western traffic has decreased 316½; the York, Newcastle, and Berwick, 77½; and the Great Western, 327.

PARLIAMENTARY EXPENSES.—To construct a certain Scotch line of 80 miles in length, no less than 21 Acts of Parliament were required.

The directors of the South Devon Railway Company have presented many of the policemen and line-men, the longest in the service of the company, with a docket of 24 each, in recognition of their steady and punctual discharge of their duties. *Railway Times.*

It is announced that the directors of the London and North-Western Railway have refused the application of the Caledonian Company for an advance of 200,000, or 300,000, upon security of the rolling stock of the latter.—*Ibid.*

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.	Bar's West Hartley 14 6—Carr's Hartley 14 9—Davison's West Hartley 15 3—East Wylam 14 6—Hastings Hartley 14 9—Hedley's Hartley 13 3—Hollywell 16 6—North Percy Hartley 14 6—Newcastle Hartley 13 3—Ord's Redheugh 15 6—Ravensworth West Hartley 14 6—Townley 15—West Hartley 15—Windsor's Pontop 14 3—West Wylam 15 3—Wall's End Benham 15 9—Elm Park 16—Gosforth 16 3—Northumberland 15 3—South Killingworth 13 3—Washington 16—Eden Main 17 to 16 6—Bell 17 3—Belmont 17 6—Bradford 18—Hutton 18 6—Hawell 18 6—Hutton 18 3—Jonasol's 16—Lambton 18—Mullbank 15 6—Old Docks 17—Russett's Hutton 18—Stewart's 13 3—Whitwell 16 3—Hawdon 16 6—Hough Hall 16 9—Kelloe 18—South Kelloe 16 9—South Hardlepool 17 6—West Hutton 16 9—Adelaide Ties 17 9—Cowdon Ties 16 3—Tees 18 6—Aithracite 20—Anthracite through and through 16—Cowpen Hartley 14 9—Howard's West Hartley Netherthorpe 15 3—Llangennech 20—Nixon's Merthyr and Cardiff 21—Risca Rock Vein 17 6—Sidney's Hartley 14 9—Ships at market, 284; sold, 97.
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WEDNESDAY.	Bar's West Hartley 14 6—Carr's Hartley 14 9—East Adair's Main 14 9—Hastings Hartley 14 9—North Percy Hartley 14 6—Newcastle Hartley 13 3—Ravensworth West Hartley 14 6—West Hartley 14 6—Wylam 15 3—West Wylam 15 3—Wall's End Benham 15 9—Hottop 15 3—Northumberland 15 3—Riddell's 15 3—Eden Main 17—Lambton Primrose 17—Belmont 17 6—Hutton 18—Hawell 18 3—Hutton 18—Lambton 18—Lumley 16 6—Plummer 16 9—Russett's Hutton 17 6—Stewart's 13 3—Whitwell 16 3—Casop 17—Hough Hall 16 6—South Kelloe 16 6—West Hutton 16 3—Hawdon 16 6—Hough Hall 16 9—Kelloe 18—South Kelloe 16 9—South Hardlepool 17 6—West Hutton 16 9—Adelaide Ties 17 9—Cowdon Ties 16 3—Tees 18 6—Aithracite 20—Anthracite through and through 16—Cowpen Hartley 14 9—Howard's West Hartley Netherthorpe 15 3—Llangennech 20—Nixon's Merthyr and Cardiff 21—Risca Rock Vein 17 6—Sidney's Hartley 14 9—Ships at market, 242; sold, 77.
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FRIDAY.	Carr's Hartley 14 6—Davison's West Hartley 15 3—Adair's Main 14 6—Hastings Hartley 14 6—Hollywell 16 6—Newcastle Hartley 14—Ravensworth's West Hartley 14 6—South Peareth 14—Stewart's Hartley 14—West Hartley 14 6—Weston Hartley 13—Wylam 16—Wall's End Hottop 15—Northumberland 15—Percy 15 3—Riddell's 15 3—Eden Main 17—Lambton Primrose 17—Belmont 17 6—Hutton 18—Hawell 18 3—Hutton 18—Lambton 18—Lumley 16 6—Plummer 16 9—Russett's Hutton 17 6—Stewart's 13 3—Whitwell 16 3—Casop 17—Hough Hall 16 6—South Kelloe 16 6—West Hutton 16 3—Hawdon 16 6—Hough Hall 16 9—Kelloe 18—South Kelloe 16 9—South Hardlepool 17 6—West Hutton 16 9—Adelaide Ties 17 9—Cowdon Ties 16 3—Tees 18 6—Aithracite 20—Anthracite through and through 16—Cowpen Hartley 14 9—Howard's West Hartley Netherthorpe 15 3—Llangennech 20—Nixon's Merthyr and Cardiff 21—Risca Rock Vein 17 6—Sidney's Hartley 14 9—Ships at market, 242; sold, 77.
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DELIVERY OF COALS, &c., IN THE PORT OF LONDON, DURING OCTOBER.

	Ships.	Tons.
Newcastle.....	476	149,353
Sunderland.....	373	104,835
Stockton, Middlesbrough, &c.....	300	76,399
Blyth.....	39	8,548
Scotch.....	4	287
Welsh.....	57	16,522
Yorkshire, &c.....	38	2,752
Small Coal.....	6	1,510
Cinders.....	2	195
Total.....	1292	360,434

From the 1st of January to the end of October, 1845, 2,944,427 tons were delivered in London from 10,299 ships. In the corresponding period of 1846, 2,700,106 tons were delivered from 9868 ships. Decrease in 1846, 411 ships and 144,321 tons.

CORNISH STEAM-ENGINES.

The number of pumping-engines reported for the month of Oct. is 96—the quantity of coals consumed being 1862 tons lifting, in the aggregate, 18,000,000 tons of water 10 fathoms high—the average duty of the whole is, therefore, 55,000,000 lbs. lifted 1 foot high by the consumption of a bushel of coal.—The following have exceeded the average:—

Mines.	Engines.	Length of stroke in inches.	Load in pounds.	Load per sq. inch on piston.	Strokes per min.	Consumption of coal in bushels.	Million lbs. lifted 1 foot by 1 bushel of coal.	Mills lifted 1 foot by 1 bushel of coal.
East W. Croft	Freemason's 80	10-33	82,353	12-2	5-4	2370	59-2	71
Pollock	Sim's 80-in.	10-0	77,545	9-5	8-4	3240	58-4	70
United Mines	Taylor's 80-in.	11-0	97,521	15-6	5-3	2694	78-9	94
Ditto	Cardozo's 90-in.	9-0	100,582	13-8	6-0	2386	87-7	69
Ditto	Edon's 30-in.	9-0	13,631	18-0	8-2	511	67-0	80
Ditto	Loam's 83-in.	10-0	87,947	11-6	6-1	2906	56-5	67
Ditto	Hocking's 85-in.	10-0	97,817	14-4	6-2	3641	56-5	68
Tynewydd	Gardiner's 90-in.	10-0	78,957	12-0	7-3	3000	69-1	72
East W. Rose	Pearson's 70-in.	10-0	72,008	16-3	4-9	1680	67-5	80
Ditto	Michael's 70-in.	10-0	68,988	16-1	3-9	1490	69-4	83

THE GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND.

NOTICE IS HEREBY GIVEN, that APPLICATION is intended to be made to Parliament, in the ensuing Session, for an ACT or ACTS to facilitate the ARRANGEMENT and SETTLEMENT of the AFFAIRS of the Corporation of the GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND, and to confer on the said Corporation ADDITIONAL POWERS of SALE and TRANSFER of their UNDERTAKING, PROPERTY, ESTATES, and EFFECTS; and also to enable the said Corporation to transfer their Charter or Charters to another company, to be entitled, "THE GOVERNOR AND COMPANY OF COPPER MINERS IN ENGLAND," or to be called by some other name or title, and to enable such new company to purchase and hold the said Property, Estates, and Effects, or any part thereof, and to raise a Joint-stock for that purpose; and also to ALTER and ENLARGE certain of the Powers contained in the said Charter or Charters, and otherwise to vary the same, as by reducing the number of the Court of Assistants of the said Corporation, and by limiting the power of the said Corporation to borrow Money on debentures or mortgage, and to require the appointment of Auditors of the affairs of the said Corporation, and to confer on such new company certain additional powers, and to enable them to raise a further Capital or Joint-stock, by the creation of Preference Stock or Shares, or otherwise; and to give to the Shareholders of such new company power to call General Meetings, and to regulate the proceedings at such meetings, and to facilitate the legal rights and remedies of such new Company.—Dated the 7th day of November, 1846.

LOYD'S PATENT FAN BLOWER.—The attention of FOUNDER, ENGINEERS, GAS COMPANIES, MANUFACTURERS, &c., is respectfully directed to the PATENT FAN BLOWER, as being the best machine hitherto introduced for blowing, exhausting, or giving motion to aeriform fluids, at either high or low pressures. It will do the same amount of work as the ordinary Fan Blower, with half the power, and in some cases as little as ONE-THIRD OF THE POWER, and, when at its highest speed, is wholly unaccompanied by the disagreeable humming noise which invariably attends the common machine. Further particulars may be obtained on application (by letter or otherwise), to George Lloyd, 70, Great Guildford-street, Southwark.

JUCKE'S PATENT SMOKE-CONSUMING FURNACE.

—The above is in SUCCESSFUL OPERATION at the under-mentioned places:—viz.: Three at Her Majesty's Mint; three at the Artesian Wells, Trafalgar-square; one at the Tower; two at the Thames Tunnel; 10 at Preece's Candle Company; five at Messrs. Craven and Lucas's, sugar refiners; and at the following breweries:—10 at Messrs. Truman, Hanbury, and Co.'s; six at Messrs. Elliott and Co.'s; one at Messrs. Barclay, Perkins, and Co.'s; one at Messrs. Combs, Delfield, and Co.'s; and one at Messrs. Thorne and Son's. Upwards of 40 are in use at different steam-mills. It is also in operation in a reverberatory furnace at the Mint, and is particularly adapted for smelting or heating metals or other materials. The entire consumption of smoke, great economy of fuel, and the certainty of a steady fire, which can be regulated at pleasure, and made of the refuse or screenings of coals, render this patent of great value for all manufacturing purposes. It is admirably adapted for steam-boats and locomotive engines, where coke or anthracite coal is now used. The proprietors are willing to SELL the PATENT RIGHT, for any city, town, district, or country, or to any steam-boat or railway company; also for Scotland, Ireland, the colonies, or Holland. The French patent right is sold, and working well in France, and on board the French frigates, *Prometheus*. For terms to manufacture the patent apply to Messrs. Quilter, Ball, Jay, and Crossby, 57, Coleman-street, London. Furnaces can be supplied by the following engineers, who are already licensed to manufacture the patent:—Surmon and Co., Canal-bridge, New North-road, Hoxton; Joseph Beaumont, Leman-street, Whitechapel; Easton and Amos, Grove, Guildford-street, Southwark; John Wood, and Co., Sowerby-bridge, Halifax; and John Gray, and Co., Rhodoe Iron-Works, Chester.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS TO CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY. BOOK PASSENGERS and RECKONERS OF GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 30th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 10th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th, 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo, apply at the company's offices, No. 123, Leadenhall-street, London; and 57, High-street, Southampton.

SEA, FIRE, LIFE ASSURANCE OFFICE, (ESTABLISHED BY ACT OF PARLIAMENT.)

Capital £100,000, in shares of 20s. each, to be paid in full on allotment, bearing a guaranteed interest of 5 per cent. in perpetuity (irrespective of further dividends) upon the paid-up capital.

Application for shares to be addressed to the Directors, at the offices of the Society. Marine, fire, and life assurances granted on the most liberal terms.

Immediate and deferred annuities granted on terms especially advantageous for investment of capital. By order, AUG. COLLINGRIDGE, Managing Director.

Age.	With Profit.	Age.	Without Profit.
21	£1 12 3	20	£1 14 6
30	2 11 3	30	2 8 1
40	3 8 3	40	3 0 3

The whole of the Profits from the Life Department divided amongst the Policy holders. All Life Policies indisputable.—All Life Policies free of stamp duty.

ALFRED BURT, Actuary.

WANTED, AGENTS AND MEDICAL REFEREES for the PRINCIPAL TOWNS. COUNTY SURVEYORS ALSO REQUIRED.

AGENTS WANTED IN DEVON, CORNWALL, AND NORTH AND SOUTH WALES.

SCOTTISH AMICABLE MUTUAL LIFE ASSURANCE

SOCIETY.—ESTABLISHED 1826. LONDON OFFICES—No. 43, LOMBARD-STREET.

THE MOST NOBLE THE MARQUIS OF DALHOUSIE.

HIS GRACE THE DUKE OF BUCKLEIGH.

JOHN CAMPBELL COLQUHOUN, Esq., of KILMARNOCK.

A Policy of £1000, opened with this Society in 1840, was, in 1846, by the addition of £2 per annum on every £100, increased to £1120. And, by the above principle of this Society, an addition of 2 per cent. per annum, upon the above accumulated sum of £1120, gives, as the value of the original policy of £1000.

In 1840, if it then becomes a claim.....	£1187 4 0
1850.....	1300 12 0
1860.....	1322 0 0
1870.....	1354 8 0

TABLE.—Illustrating Accumulation of Additions on £1000 Policy on Society's Plan:—

Amount with Additions.	Sum of Premiums paid according to Ages at entry.
At end of 10 years.	At end of 20 years.
Years.	Years.
6.....£1120 0 0.....£145 5 0.....£167 8 4.....£196 5 10.....£235 19 2	
12.....1276 16 0.....290 10 0.....334 16 8.....392 11 8.....471 18 4	
17.....1659 6 7.....581 0 0.....669 13 4.....785 3 4.....943 16 9	
22.....2802 10 10.....1162 0 0..........	

New entrants admitted to every advantage. Immediate, deferred, and survivorship annuities granted. Every facility afforded to assureds.

THE WHOLE PROFITS DIVIDED AMONG THE ASSURED.

Manager—WILLIAM SPENS.

Resident Secretary in London—J. E. C. KOCH.

INDURATED AND IMPERVIOUS STONE, CHALK, &c.

—AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.

Apply to HUTCHISON & CO., 140, Strand, London; or to Tانبridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c. LICENCES GRANTED.

PATENT IMPROVEMENTS IN CHRONOMETERS,

WATCHES AND CLOCKS.

J. DENT, 82, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT to Her Majesty the Queen and His Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1830, 1840, 1842. Silver lever watches, jewelled in four holes, 6s. each; in gold cases, from £4 to £10 extra. Gold horizontal watches, with gold dials, from 8s. to 12s. each.

DENT'S PATENT DIPIEDSCOPE.

Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

THE MINING ALMANACK for 1850: compiled and arranged

by HENRY ENGLISH, Mining Engineer, &c. Under the special sanction and patronage of H.R.H. PRINCE ALBERT, Lord Warden of the Stannaries, Chief Steward of the Duchy of Cornwall, Devon, &c.—THE SECOND VOLUME will appear early in JANUARY next, with ADDITIONAL TABLES and STATISTICS, connected with the Mining Interest.—Names of subscribers are requested to be addressed to Mr. H. English, 26, Fleet-street.

NOTICE TO RAILWAY AND STEAM-BOAT TRAVELLERS.

—ANDERTON'S HOTEL, 162, 164, and 165, FLEET-STREET, LONDON.

(Established upwards of 200 years.) F. CLEMOND begs to acquaint Gentlemen, Families, and the Public in general, visiting London, that the above Hotel is situated in the centre of London, with communication every five minutes to and from all the Railways and Steam-boats, near the Theatres, Law Courts, Bank, Docks, &c.—The larder and wine arrangements are equal to the best clubs in London. The daily bill of fare contains every delicacy. Dinners from Twelve to Eight o'clock. From the joint, with vegetables, &c., 1s. 6d.; ditto, with soup or fish, 2s.; game, poultry, &c., Breakfast, with joint, 1s. 6d. Beds, 10s. 6d. per week. Servants charged in the bill. Turtle soup, 10s. 6d.; mock ditto, 5s. per quart; sent to all parts of England. Rooms for large or small dinner parties, public meetings, societies, &c. Dinners and suppers sent out to order. Contracts for board and lodging.—F. CLEMOND, 162, 164, 165, FLEET-STREET. A night Porter always in attendance.—N.B. Table-d'Hôte daily, at two, five, and half-past five o'clock, at 2s. each.—Soups, fish, joints, poultry, made dishes, &c.

Shortly will be published, in Lithograph,

A SYNOPSIS OF THE CORNWALL TICKETINGS

FOR COPPER ORES, from 1800 to the present time; together with

A SYNOPSIS OF THE SWANSEA TICKETINGS.

From 1815 to the same period; which contains the following information—viz.: the Standard, Produce, Price, Quantity of Copper Ores Sold, Amount of Money realised, and the Quantity of Fine Copper produced; with respective fluctuations for each year, as well as for every six years; exhibiting also the totals and averages for the whole period collectively.

The above information will be contained on a large sheet of drawing paper, on which the Standard in each year will be delineated by horizontal lines of various colours, pointing to the particulars thereof; the said lines having a scale affixed to them, for the purpose of showing the continued RISE and FALL annually of the STANDARD.

These SYNOPSIS—as is the case with the original—will be "Inscribed, by permission, to JOSEPH THOMAS TREFFRY, Esq., of Penco, Fovey, the greatest employer of miners and other labourers in the West of England."

The original sheet was exhibited at the recent meeting of the Royal Cornwall Polytechnic Society at Falmouth, where it was regarded with much interest by gentlemen connected with mining and smelting pursuits. The copy was awarded with a medal, and was thus favourably noticed in the *Journal*. This paper, in the judgment of the committee, contains a very valuable series of deductions from published ticketing papers, very conveniently arranged for reference.

It is proposed to publish the work by subscription, price 7s. 6d., or with rollers, 10s. each, and parties wishing to procure copies will please apply at once to the compiler;

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